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5 In 1930 more than 10,000 individual theatre bookings of silent and talking newsreels featured cotton fashions.

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COTTON

Vol. 95 April, 1931 No. 6

Knitting Show and Meet at Philadelphia

WITH the approach of the annual spring convention season, space is given here to details of two of the major meetings to be held in April. One is the American Cotton Manufacturers Association annual convention in Augusta on April 24th and 25th; the other is the regular Knitting Arts Exhibition and convention in Philadelphia during the week of April 13th.

Dates of other textile conventions will be found on page 550 of this issue.

THE STAGE is set for the 27th Annual Knitting Arts Exhibition, to be held at the Philadelphia Commercial Museum, in West Philadelphia, Pa., during the week of Monday, April 13th, to Friday, April 17th, inclusive. As usual, the show will occupy the entire exhibition floor of the Commercial Museum, and will be held under the auspices of the National Association of Hosiery and Underwear Manufacturers. It will be, as usual, under the personal supervision of Chester I. Campbell and his capable corps of assistants, which is insurance of a successful event in every way.

Virtually all of the available space in the exhibition has been contracted for. The exhibit will consist of the usual displays of knitting machinery, equipment and supplies, and representatives of different services for the knitting industry, and every exhibitor has exerted every effort to provide a worth-while and profitable show.

Left, J. N. McCullaugh, managing director of Association, and, right, Chester I. Campbell, manager, Knitting Exhibition.

The exhibition has come to be an institution in the knitting industry, and during Show Week, the Philadelphia show is the Mecca for knitting interests of all kinds in every section of the country. Arrangements have been made for special cars of knitters and others from the South, and from the Chicago and Mid-West territories, and these will augment the attendance from the Pennsylvania, New York and New Jersey Sections. With every knitter now especially keen in learning of latest developments which will produce efficiency and assist in making it more possible to meet the stringent requirements of ever-changing markets, it is confidently predicted that a record attendance will be on hand throughout the week. And the exhibitors, recognizing the importance of the occasion, have provided a community of exhibits which will make attendance and study of the equipment and supplies displayed well-nigh essential.

The show will operate continuously from 10:00 A. M. to 10:00 P. M. each day with the exception of Friday, when activities will cease at 6:00 P. M. One important feature of the week is the annual meeting of the National Association of Hosiery and Underwear Manufacturers, sponsors of the exhibit. It is announced by John Nash McCullaugh, managing director of the association, that this year the 27th annual convention will be held on Thursday morning, April 16th, at the Commercial Museum.

Complete details of the program for the meeting were not available at the time of going to press, but one notable feature will be an address by P. I. Loeb, hosiery buyer for R. H. Macy & Co., New York City, the largest department store in the country.

Convention of National Association.

Mr. Loeb's subject will be "Taking a Cue from the Retailer." He will outline some of the basic principles of retailing which in his opinion may be properly applied to the manufacture of hosiery, and will in general express to manufacturers the viewpoint on the industry of a large buyer of its products.

As active head of a hosiery department which does one of the largest hosiery businesses, if not the largest in the entire retail field in the United States, Mr. Loeb is especially well-qualified to handle his subject.

Another prominent speaker at the National association's annual meeting, Mr. McCullaugh announces, will be John Wyckoff Mettler, president of the Interwoven Stocking Co., New Brunswick, N. J.

The convention will be held, as was the case last year, in a soundproof meeting room at one end of the Philadelphia Commercial Museum, eliminating the possibility of disturbing noises from the Knitting Arts Exhibition, which will be going on in the main hall of the Museum.

The meeting is scheduled for 11:00 A. M., on Thursday, and immediately after the one-session convention, the annual luncheon of the Association will be served in the dining hall of the Commercial Museum. This is always an interesting and enjoyable occasion, attended by members of the association, exhibitors and their representatives, and guests.

A meeting of the Durene Association of America will be held at 11:00 A. M., on Wednesday, April 15th, in conjunction with the exhibition.

Inter-Relation of Southern Farmer and Manufacturer Keynote At Augusta

THE KEY-NOTE of the annual meeting of the American Cotton Manufacturers Association, which will be held at the Bon Air-Vanderbilt Hotel, in Augusta, Ga., on April 24th and 25th, is "The Southern Cotton Farmer, or the Producer of Our Raw Materials."

President Geer, although a textile manufacturer of many years, has always been deeply interested in the welfare of the southern farmer. It has been thought advisable by the committee in charge of the program that special emphasis should be placed this year upon the relationships that exist between the economic condition of the textile industry and the cotton farmer. When it is realized that 50 per cent of the population of the South is directly dependent upon the farms for their livelihood and that this large group directly affects the economic conditions of the mills, the wisdom of this key-note is evident.

While Mr. Geer has not indicated the central theme of his address, or any of the subject matter to be discussed, it is understood that he will deal directly and specifically with some phases of the farm problem, indicating its relation to the cotton textile industry and how this can be improved. Having been a resident of South Carolina since birth, and South Carolina having perhaps more keenly felt the problems that have been projected and the difficult solutions that have been offered, Mr. Geer occupies a very strategic geographical position, which will enable him to project for the convention a very constructive address.

Sec. McLaurine.

George A. Sloan, president of the Cotton-Textile Institute, will speak at the morning session, endeavoring to portray to the southern cotton farmer the efforts that are being made by the Cotton-Textile Institute to alleviate some of the drastic conditions now obtaining in the agricultural communities.

Many people regard the Cotton-Textile Institute as strictly an organization working for the welfare of the cotton textile manufacturers, but such is not the case, as Mr. Sloan will show conclusively. The interdependence of cotton production and cotton manufactures is very evident to the student of economic conditions.

One of the great lessons that the economic situation, through which we have just passed, has impressed upon the minds of thinking people is that all businesses of life are inter-dependent. However, they are not all equally so, some are more vitally connected than others, as in the case of cotton production and manufacturing.

An article recently appearing in one of the leading journals states this same thing a little differently. It says that many of our economists have been limited in their studies by the confines of a particular industry, hence there has been a great weakness in their findings. The economist of significance and of fair values has been the one who has been able to sense a national and international viewpoint, and has been able further to express the dependencies of the economics of the various individual businesses.

The Friday afternoon program will be a round-table conference with B. B. Gossett of Charlotte, the second vice-president, presiding. The general theme which this round-table group will discuss is, "American Cotton and Its Future."

Mr. Gossett is well informed on the agricultural situation as well as the textile manufacturing industry, and his direction of the round-table discussion, which will follow two specially prepared papers, will doubtless provoke many valuable suggestions.

The first topic will be introduced by an address on the subject "World Changes in Cotton Growing and Cotton Manufacturing and Its Influence Upon the South."

The second topic will be discussed by Dr. W. W. Long, head of the Agricultural Department of Clemson College, Clemson, S. C., and will be: "What South Carolina Cotton Growers and Cotton Manufacturers Are Doing to Adjust Themselves to These Changes."

Dr. Long is perhaps an outstanding figure in the work that he has done in South Carolina. His bulletins which are issued upon the facts revealed by his work are most illuminating and most convincing. His work is showing conclusively that the situations inducted by these changes can be properly adjusted.

As said before, following these two prepared addresses members of the group will be given an opportunity to discuss any phase of the key-note, or any phase of the addresses.

It is hoped to make this afternoon session most constructive.

At 8 o'clock the annual banquet of the Association will be held in the main dining room of the hotel, at which President Geer will preside as toastmaster, introducing the honor guests and visitors. Following the banquet an address will be made on the subject "The Future of the American Cotton Farmer."

On Saturday morning, the 25th, the convention will conclude with an executive business session, at which the various reports will be read, the officers for the new year will be elected and the retiring president will be awarded the Association medal of appreciation and distinction.

Mr. Geer is so anxious that this shall be a bona fide cooperative meeting that he has invited the heads of the various Agricultural Colleges of the South, the heads of the Agricultural Departments and representative farmers from each Southern state to be present.

Cleaning and Oiling Mill Machinery

A well-known quality yarn manufacturer describes the cleaning and oiling schedules and general maintenance methods used in his plant

A THOROUGH description of the cleaning and lubricating schedules and methods used in the production of first-quality yarns, ranging from 4's to 80's, in one of the country's outstanding yarn plants. Complete details of the cleaning practices and oiling schedules, as well as clear descriptions of other methods used for insuring quality product, are given here.

Though every plant would not find it practicable to adopt the complete program intact, we feel that in this article there are many valuable points for the consideration of every mill man.—The Editor.

THE PROPER cleaning and oiling of cotton mill machinery is a subject that should be carefully considered by the large majority of cotton mills. There is no doubt in my mind as to the importance of the subject, and for this reason, it is hard to understand why there is such a lack of any systematic procedure along these lines in many of our mills. If many could only see their loss in dollars, I am sure we would see the present methods of cleaning and oiling used by the many mills discarded and a systematic, orderly system adopted. I am going to ask you to bear in mind that in this article, I am telling you of the practices of a mill that is making combed and carded yarn, where the quality requirements are very high. Otherwise, you will feel that we are taking unnecessary precaution.

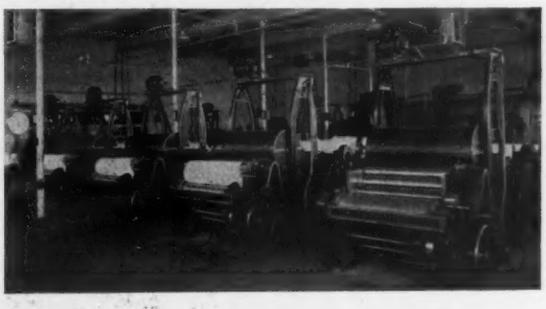
I do feel that there are a large number of mills making the same class of yarn that we are making that could use many of our methods of cleaning and oiling to greatly improve their quality.

Opening Equipment.

Starting in with the opening, we have found it advisable to inspect the outer portions of every bale of cotton, after the bagging and ties have been removed, and all the rust and ink spots, which are so prevalent in most bales, are picked off. This appears on the surface a rather small item, but we have found that these rust and indelible ink spots will not come out in bleaching, and that much faulty work will result.

Picking Machinery.

Every six months, our pickers and opening equipment are torn down from top to bottom and given a general cleaning and overhauling. All worn-out parts, such as gears, studs and bearings, are removed and replaced with new ones. In case the striking edge of the beater blades has become rounded, or dull, they are taken to the machine shop and placed on balancing ways to determine whether the beater is out of balance. If so found, they are balanced when the blades are being planed or sharpened. Some of the inspections performed at this time are on the exhaust fan pipes. The calender rolls are taken out and cleaned; the screens are repaired and cleaned, and new leathers are placed around the ends of the screens when needed. Evener motions are dismantled and cleaned, and the beater bearings are thoroughly cleaned of old oil and grease and replaced with fresh lubricants. We have sixty-nine pickers in our plant, and have one man do all the oiling on these machines. Since adopting this system, we have been able to keep our pickers thoroughly lubricated, and the upkeep of this department is held down to a minimum.

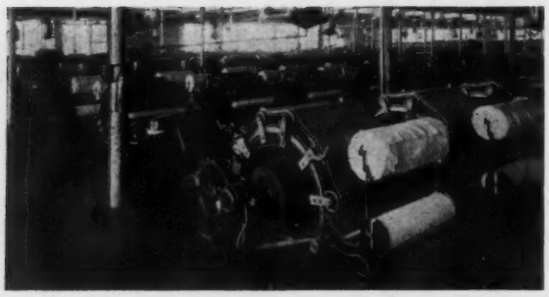


Carding Machinery.

Cards are stripped four times daily. At this time, all the fly and lint are thoroughly brushed off the machines. When a card is stripped, the end is not put up immediately. The stripping man stays about five cards ahead of the man who puts up the ends. This gives the cylinder and doffer sufficient time to fill up so as to give the same weight sliver as before stripping. If an end is put up immediately, the sliver runs entirely too light, which will make a great variation in the sliver. We have always made it a custom to strip cards across the mill, stripping one line and omitting one line until we strip the lines that were omitted on the first round of stripping. This greatly aids in giving a fairly good average on the weights.

We have also found that it pays to have a careful and painstaking man do the oiling of the cards and not trust this work to the regular card tenders, as their time is usually taken up with other duties and the oiling is often neglected. Do not put too much oil on the cylinder and doffer bearings, as an oversupply will find its way out of the bearing and onto the card clothing, which is very detrimental.

A good rule is to grind the cards every twenty days, cylinders, doffers and top flats, and check up on all the settings. Clean the flat chains, pick the gear teeth, clean out all oil holes and brush belts twice weekly with a stiff fiber belt brush. We have found it to be a splendid idea to trim the end of the spiral brushes 1/16-inch about every two years. If these are run too long, the points of the fibers become needle-pointed so that it is impossible to brush out the top flats when the wires become fouled with short lint. To accomplish this



work properly, it is necessary to have a reasonably blunt end on the fiber or bristles, so as to hook the cotton out of the wires on the flats. The bristles in the spiral brushes should be set just so they will touch the clothing. If set just below the knee of the wire, the cotton packs into the flats, and then it is necessary to use a burnisher. We do not advocate using this unless it is absolutely necessary, as it tends to loosen up the wires in the clothing.

Sliver Lap, Ribbon Lap and Combing Machines.

The sliver and ribbon lap machines should be given proper supervision to see that they are oiled properly; and that all the knock-off motions are kept in perfect condition, to eliminate singlings and doublings.

The comber is a very intricate machine, and to get best results, it is necessary to have the operatives properly trained to look after them. The comber fixer should be thoroughly trained and know just how to overhaul and set the machines so as to get the best results. When the laps are put up, the ends should be properly spliced, so as not to make thick places. If the ends of the laps are put up double thickness, this plays havoc with the needles on the half laps and top combs. These machines should be cleaned in a systematic way so as not to work pieces of fly and "rat-tails" into the sliver. The detaching rolls and cams should be oiled with a reasonably thin grease. Other parts of the comber can be oiled with regular machine oil. It is necessary that the oiler use sufficient oil to keep the machines properly lubricated, but not enough to work out of the bearings and get on the sliver and finally show up in the finished product and spoil the goods.

Drawing Machinery.

The drawing frames are simple in construction, but are badly abused. It was a custom at one time to place any one on the drawing frame who could not do other jobs about the mill. Of course, if unskilled operatives are placed in charge of these machines, many singlings and doublings will result in the finished yarn. We have found it a good idea to tear these machines down once a year and remove all worn out studs, gears, bad boxes and bent shafts, or anything that might spoil the quality of the product, and replace them with new parts. Once the machines have been put in first-class shape, it is an easy matter to keep them up to standard without very much expense.

Our custom is to put up a whole set of full cans at the back of the machine at one time and run these down just as low as possible; and what little sliver does not run out even, can be turned into other cans and used without making waste. Before putting up the full cans at the back, we clean up the whole frame thoroughly, backs and fronts. This goes a long way toward eliminating fly, which would work into the sliver and show up on the succeeding machines.

It is highly important to exercise great care in oiling the drawing frame so as not to get oil on the sliver. The man having charge of the oiling should be taught not to put more than about two or three drops of oil on the coiler heads. We oil our coiler heads twice each week. If an excessive amount of oil is used, the coiler plates will deposit it on the finished sliver when being placed in the cans and will result in oily streaks.

Roving Frames.

We do not allow any cleaning up whatsoever on the roving frames while they are in motion. This work should be done at the end of a doff while the machine is standing. The first operation is to take off both the front and back lines of flyers and double-cross them on the metal clearer covers. When this is done, the operatives have free access to the roller beam, which is wiped thoroughly as well as the weight hooks and side of the stands. Then the top of the spindles is cleaned, as well as the bolsters and top of the carriage. The space back of the spindles is also wiped carefully. Any accumulation of waste on top of the frames or around the creels is removed, as well as the fly on the clearer boards.

We oil the tops of the spindles twice weekly. We do not use a squirt can, but soak a piece of thread waste (not card strips) in oil and wipe the tops of the spindles, merely putting a film of oil on the surface. By using this system, the bobbins will not become fouled with oil, which would be transferred to the roving when being handled and would result in making oil spots. Bobbin gears should be oiled weekly; spindle steps every six weeks.

There are some makes of machines on the market where the bobbin gears can be lifted by hand and a few drops of oil squirted under the gears. There are also some makes of machines where the bobbin gears cannot be lifted without removing the casing, due to the fact that the bobbin gear is larger than the hole in the casing. On these machines, we have worked out a system that has worked out splendidly. We take the bobbin gears off the frames and send them to the machine shop; and each one is put in a scroll chuck on the lathe and a grease channel turned on the inside about ⅜-inch wide and about ⅛-inch deep. These grooves are not "V" shaped, but the walls are turned down square on each side. This groove is put directly behind the teeth of the gear on the inside, as this particular place has sufficient stock for turning out. When

Fig. 1.
CLEANING SCHEDULE FOR SPINNING ROOM

Monday.

Pick top clearer boards from 7 to 9 A.M., and from 2 to 3 P.M.
Pick top rolls from 7 to 9 A.M.
Wipe bottom creel boards and base end of skewers from 7 to 12 A.M.
Brush spindle rails at 7:30, 9, 11 A.M., and 1:30, 3:30 and 5 P.M.
Wipe back board under weight levers at 10:30 A.M., and 4:30 P.M. (This should be done without drawing waste out through the threads.)

Tuesday.

Pick top clearer boards from 7 to 9 A.M., and from 2 to 3 P.M.
Pick top rolls from 7 to 9 A.M.
Wipe deck board and base end of skewers, also back bars, edge of top creels and handle bars from 7 to 12 A.M.
Brush spindle rails at 7:30, 9 and 11 A.M., and 1:30, 3:30 and 5 P.M.
Wipe back boards under weight levers at 10:30 A.M., and 4:30 P.M. (This should be done without drawing waste out through the threads.)
Clean ring rails with finger brush, also inside head of frames and draft gear cover from 1 to 5 P.M.

Wednesday.

Pick top clearer boards from 7 to 9 A.M., and from 2 to 3 P.M.
Pick top rolls from 7 to 9 A.M.
Wipe bottom creel boards and base end of skewers from 7 to 12 A.M.
Brush spindle rails at 7:30, 9 and 11 A.M., and 1:30, 3:30 and 5 P.M.
Wipe back boards under weight levers at 10:30 A.M., and 4:30 P.M. (This should be done without drawing waste out through the threads.)
Clean steel rolls, trumpet guides and back bars from 1:30 to 4:30 P.M.
Wipe spindle bases at 5 P.M.

Thursday.

Pick top clearer boards from 7 to 9 A.M., and from 2 to 3 P.M.
Pick top rolls from 7 to 9 A.M.
Wipe deck board and base end of skewers; also back bars, edge of top creels and handle bars from 7 to 12 A.M.
Brush spindle rails at 7:30, 9 and 11 A.M., and 1:30, 3:30 and 5 P. M.
Wipe back boards under weight levers at 10:30 A.M., and 4:30 P. M. (This should be done without drawing waste out through the threads.)
Wipe under thread boards and around draft gear covers from 1 to 5 P.M.

Friday.

Pick top clearer boards from 7 to 9 A.M., and from 2 to 3 P.M.
Pick top rolls from 7 to 9 A.M.
Wipe bottom creel boards and base end of skewers from 7 to 12 A.M.
Brush spindle rails at 7:30, 9 and 11 A.M., and 1:30, 3:30 and 5 P.M.
Wipe back boards under weight levers at 10:30 A.M., and 4:30 P.M. (This should be done without drawing waste out through the threads.)
Clean spindle bases and back of spindle rail from 11 A.M. to 4 P.M.
Clean ring rails with finger brush, and clean dust and lint from roving rod from 7 to 11 A.M.

Saturday.

Pick top clearer boards from 7 to 9 A.M.
Pick top rolls from 7 to 9 A.M.
Brush spindle rails at 7:30, 9 and 11 A.M.
Wipe back boards under weight levers at 10:30 A.M. (This should be done without drawing waste out through the threads.)
Wipe deck boards and base end of skewers, also edge of top creels and handle bars, from 7 to 12 A.M.

Rules for Special Operatives.

Clean head and foot end of frames four times daily; also clean underneath the frames, such as sampsons, rockers and weights.
Wipe top of frames four times daily.

the grooves are turned out, they are filled with No. 2 grease for winter and No. 3 for summer.

We find that these gears can be lubricated properly with grease, using it about every four months—*not using oil.* If this method of lubrication is practiced, then it is not necessary to squirt oil around the top of the bobbin collar so as to oil the bobbin gear at the bottom. This makes a very sloppy condition, as the oil gets on the ends of the bobbins and is transferred to the roving while the frames are being doffed or while the roving is in transit to the spinning frames. When oiling the other parts of the machine, it is necessary for each individual mill to work out its own system, due to varying conditions. It is hard to make any fixed rule to cover every condition.

On each roving frame, we have attached several small iron containers, which are fastened to the front creel rail. These containers are put close enough together so that they are easily reached by the operative. Spanish whiting is put in these and when an end comes down, a little is used on the fingers while piecing up the end. If this is practiced, black finger marks will not be left on the roving where the splicing is made. As an added precaution, we have placed galvanized water buckets, also towels and soap, near each set of roving frames. All the operatives are required to wash their hands after cleaning up so as not to make black places on the roving when doffing or putting up ends. It is good practice to creel two rows of roving at one time. By doing this, it greatly lessens the rush of the operative, which might lead to singlings and doublings.

When creeling the frames, we take special care in teaching the operatives not to twist the end too hard, as this leads to hard ends and badly grooved rolls on the succeeding machines. When doffing the frames, have the operatives pack the full bobbins of roving crosswise in slatted boxes. Then when a piece of black fly falls out of the ends, it will fall through the slatted bottom and will not be deposited on the surface of the roving, "to take a ride to gum up the works".

Spinning Frames.

In our spinning rooms we have adopted the schedule for cleaning shown in Fig. 1 herewith.

We have copies of these rules posted in each spinning room, and see to it that these rules are carried out as scheduled. It is a difficult matter to work out a schedule for cleaning under one heading, due to the fact that different cleanings are done on certain days and certain hours. After studying the schedule, it may seem to some that we are doing entirely too much cleaning. We are only giving our system, and we believe that after this is studied carefully by different mills, depending on whether they manufacture fine or coarse counts, carded or combed, a schedule can be worked out for every mill to meet its own requirements. By adopting this schedule and letting the operatives know really what is expected, they soon fall in line and the system soon becomes a habit and is carried out systematically daily.

We have a girl in each spinning room, who walks in the alleys at all times, inspecting the roving creels, taking out any bob-

bins that may have an imperfection, such as oil streaks and spots made from pieces of black lint. It is really surprising how much bad work can be corrected in this manner. This inspection goes a long way toward keeping out imperfections that would otherwise get into the work. The faulty bobbins taken from the frames are placed in roving boxes and are inspected carefully by the overseer, who, in turn, delivers them to the card room overseer. By keeping close tab on the bad work, these imperfections can be greatly reduced.

Special Set of Bobbins.

We keep on hand a special set of bobbins in each department, and when a whole frame of ends comes down from any cause, we doff off the whole frame of bobbins, regardless of the amount of thread on them, and these bobbins are taken to the winders or spoolers and used up in the regular manner. This same system is also used in the card room. The special set of bobbins kept on hand is put on the spindles and the ends spliced up while the machines are standing. When this is done, the machine is started up slowly and the splices wound on the special bobbins. Then these are doffed off and replaced with empty bobbins and then the frame is again started.

The whole idea is to work out the splices where the ends were pieced up on the roving and spinning. These splices are usually about 36 inches apart and if not taken out, will result in imperfections in the regular work. These special bobbins are used from time to time to hold the splices until they are about one-third full, when they are taken to the reels and reeled into waste. Where these splices are made, usually a black finger mark shows up, and this is reflected in the finished product, especially when the goods are bleached.

Across the top of each spinning frame, we have placed four wooden strips, ⅞-inch x 3-inch, so as to provide a special space for the full roving and empty bobbins. To keep the fly in narrow limits, we recommend that only one layer of roving be put in the space provided for the full roving. If three or four rows are stacked on each other, the full bobbins soon become covered with an accumulation of fly and this works into the finished yarn, which is very detrimental. Any surplus roving that cannot be taken care of on the spinning frames is to be kept in slatted roving trucks; not taken out and stacked into bins. To carry out this system, it is necessary to have a great many slatted boxes.

Brushes Out Roving Bobbins.

We have a system of brushing out all our roving bobbins, every doff, before they are put on the spindles. This is done on two revolving brushes, placed side by side. The boy who brushes out the bobbins handles two at a time, one in each hand. A slatted bobbin hopper can be made and placed on the right side of the boy who cleans the bobbins and is made sufficiently large to receive a whole box of empty bobbins to be cleaned. This system may appear to be expensive, but once it is established, we really believe that it is a good investment.

It is absolutely necessary to brush these little pieces of lint out of the bobbins to keep down the black work, as this is the source of most of the trouble. This is one of the things that should have careful and constant attention.

In the spinning room, we have men to take care of the oiling and banding, also taping the frames. They oil all heads and fast running parts twice daily, while the top rolls and steel roll stands are oiled on Tuesday and Thursday of each week. We oil our spinning spindles every two weeks with regular spindle oil, but in addition, at the end of every three months we oil them with kerosene oil. This is done at one of the regular oiling periods, omitting oiling with regular spindle oil when this is done. This cuts out all of the heavy black oil and gum. This works out of the spindle bases and the bearings are kept bright. Some may object to using kerosene, but we have been using this for twenty years with no ill result.

Winding Frames.

We believe it is more difficult to attempt to apply a generalized rule for cleaning cone winders, as so much depends on the work being run. It is next to impossible to give any fixed and set rule for cleaning. On all of our winding frames, we run the ends out twice daily, 9 A. M., and 3 P. M., and give the machines a thorough cleaning from top to bottom. This cleans off all the fly that has accumulated on the different parts of the machine. This fly and lint fall to the floor and are swept up before the ends are tied up again. This greatly lessens the possibility of getting loose fly into the cones. *When each doff is finished,* the full cones are taken off and replaced with empty ones. Then the yokes and the space directly behind them are wiped off by hand with a small piece of card strips, tightly wadded, being sure that this is handled carefully so that no fly will be fanned onto the cones on the opposite side. We find that all the parts immediately in front of the cones can be brushed off at the end of each doff without agitating the lint and fly to any great extent, being careful that none of the ends are tied up. Oil the heads and bearings twice daily, and the cone arbors twice weekly. Grease the grooves in the drums once a week and the roller bearings every four weeks.

As stated at the beginning of this article, it is not necessary for many mills to have such rigid requirements, as to the cleaning and oiling, and it would be very inconsistent for every mill to attempt to adopt the same system we use.

In concluding this article, I wish to state that we do not use air for cleaning machinery or the overhead ceiling, as we are confident that cleaning with air agitates the fly greatly and it is bound to be an injury rather than a help. In all of our departments, we brush the ceiling with a broom and the pulleys and hangers are wiped with waste. This is done during the noon hour at the end of each week. All the accumulations of fly and lint that have been brushed from the ceiling, pulleys and hangers, are picked off the machines carefully before they are started again. It is very necessary to keep close tab on this, as it is liable to be neglected. Our assistant superintendents and overseers stay in the mill during the noon hour when this work is being done, to see that every little particle of lint is picked off the machines before they are put in operation.

A Social Responsibility of Industry

By Dunhill Marsden

BECAUSE Mr. Marsden had expressed some of the accompanying thoughts in a conversation, we asked him to prepare this article since we felt his discussion of this all-important subject would be food for thought on the part of textile manufacturers. We recommend a careful study of his comments.

Following the thoughtful analysis of Dr. Potwin, which appeared in our March issue, and in view of present conditions in the industry, we feel that this article is especially timely.—The Editor.

WILL ROGERS is a great philosopher and perhaps one of our wisest in his popular expressions. When he made the statement just before the holidays that one of the greatest Christmas presents that an organization could give to its employees would be a letter assuring them of the permanence of their employment, he hit upon one of the most popular ideas in American life today. Industry is in such a state of flux, both from a managerial and an operative point of view that no one seems to know definitely what will happen, and ofttimes in the changes that take place, due to combinations and scientific methods, the material and financial welfare of the industry so dominates the mind of the man in charge, that the men who work in the plant, and who depend upon it for their daily living, to some extent are forgotten. They are discharged in the name of progress and ofttimes the effect of this discharge upon business and upon society is not given the study that it should have.

In my dealings with large groups of workers in various industries, it has occurred to me that among all of the problems to which they lend their minds and best efforts, the problem of permanent employment is the one that occupies their minds more than anything else.

The Worker's Greatest Problem.

As a man grows older and becomes more and more dependent upon a particular industry for his employment and the discharge of certain duties within that industry as the means of a livelihood, as the gray hairs begin to appear in his temples and the quick stepping muscles begin to slow down just a little, this problem of making a living begins to assume enormous proportions in his life.

Again, when he reads statistics and sees that those in financial independence are so small in comparison with those large groups who have spent their lives industriously, and yet somehow have failed to provide for this period of their life, it becomes more intense.

Now that industry and business have grown more scientific and require more agility and more grain preparation, more understanding of the fundamental principles of science; now that machinery has been speeded up and industry has become more complex and more intense, many workers have their best and most accurate selves dulled, to a large extent, by this ever-impending cloud of uncertainty of what tomorrow may bring forth.

In making these statements, it is not meant to convey that these thoughts have not concerned the mind of the employer as well as that of the employee. There are many employers today in every industry, that can be mentioned, who have given serious study to this problem, but the great lay mind of business and industry has not sensed its responsibility to those who help operate it.

The reason for this fact is that up until the last few years industry has been working diligently trying to supply demand. The increasing population, together with the increasing development of this population, has been calling for commodities, sometimes faster than they can be made and often as fast. During the last ten years great strides have been made in science and their applications have found lodgment in industry and now machines are doing the work formerly done by thousands of men and the end is not yet.

Another reason that employers have not studied this problem so much is due to the great post-war inflationary period, during which time prices were good, profits were satisfactory and economies were not considered so necessary. During the past year the depression has brought to the foreground emphatically the weakness of our industrial economic system. Just a few million people are able to produce more than one hundred and twenty million people can buy and with new inventions and new scientific methods constantly being brought forward, the production group will become smaller and smaller and the production capacity greater and greater. This is true not only in business and industry, it is also true in agriculture.

The right-thinking man does not want charity, he does not want a dole, he does not want a pension; he wants employment, he wants the means of earning his way in this world, and not only the means of earning his way but a means of supporting those dependent upon him, and this is a worthy ambition.

A Permanent Job is Desired.

I may add further that it has been my observation that the average man is more interested in a definite income, in a steady income than he is in the amount of the income. I do not mean to imply that people will work for nothing, or that they are satisfied with a low wage, but I do mean to emphasize that of the three phases of his income mentioned the permanence and steadiness of the wage are more important than the amount, because life is a continuous process and each day brings its demands and each day requires some amount of money to meet those demands. The average American citizen is a very shifty, adaptable person, hence his capacity to adapt himself to the wage condition.

If the average employer could go to his office in

the morning and sit in a reflective mood for a few minutes not knowing whether he would be the head of the organization for a week or thirty days, or six months, not knowing whether he would have sufficient means to buy the food and clothing, the comforts and necessities of life for his family; realizing that at almost any time he could be thrown out of employment, or the operation of his plant could be stopped and his income would be stopped; I say if he could have an appreciation of what these facts mean he would give a great deal more attention to the care of those who work with him and for him.

During the past year it was a common occurrence in almost every industry that the average employee did not know from week to week whether or not he would have employment, and even though he may have anticipated employment, he did not know the length of time for which he would be employed. He was unable to make any plans, he was unable to make any budget, he was unable to do many of those things that the average American citizen has a right to do, and when I use term "average American citizen" I mean that honest, diligent, purposeful employee who is doing his best in making his contribution to society and in keeping, to the best of his ability, those intrusted to his care.

IT seems so foolish for the various industries, with their over-productive capacities, to be operated on full schedules, on extra hours, on double schedules, when it has been proven conclusively year after year that they can produce more than the public can consume. It seems so foolish for these various manufacturers to gorge the market, depress prices, create bad financial situations, and thus effect such drastic curtailment that employees who work for daily wages must suffer. * * *

As was stated a little while ago, this condition rushed in upon the employer in a way that he had never felt it before. It would be untrue to say that he did not give it serious consideration, but in his own financial and economic chaos he had so much to do in trying to save himself and his industry, that he was unable to plan as definitely and as completely for the salvation of the people working for him as he would have liked to have done.

The purpose of this article is to intensify in the mind of the employer the necessity that this problem shall be solved, not only for this year but for the years to come. It is so gigantic that it cannot be completely solved in a short time if ever, but an attempt can be made, experiments can be tried out, the field of interests of the employer can be enlarged and must be enlarged to include this vital phase of his industry.

The Menace of Social Legislation.

It seems so foolish for the various industries, with their over-productive capacities, to be operated on full schedules, on extra hours, on double schedules, when it has been proven conclusively year after year that they can produce more than the public can consume. It seems so foolish for these various manufacturers to gorge the market, depress prices, create bad financial situations and thus effect such drastic curtailment that employees who work for daily wages must suffer or become the wards of their employers or society as a whole.

The sentiments contained in this article are not simply those of an idealist and a dreamer, they are facts that permeate the socially minded statesmen and laymen of our country.

Not so long ago one of our United States Senators, in talking to a group of manufacturers in a northern state, told these manufacturers that they must so adjust their business operations that the employee can have some security and some definite knowledge as to his possible income. He further stated that he did not approve of unemployment pensions, the dole, or old age pensions, or any of those governmental, socialistic principles, but that the United States, as a Government, could not see these people suffer from causes over which they had no control. He further stated that he was issuing this statement to them as a warning that they must clean house, and so adjust their operations that these long periods of depression, with attendant unemployment, must not occur. Furthermore, if they, and the industries of this country, did not do this, then the Government would pass these socialistic measures and tax and extort from these industries and businesses, whose foresight is short, money to be distributed in doles and pensions to the people who are in penury and in want.

This article might be censured for projecting a situation that needs solution, for magnifying the need and then failing to offer a suggestion for its solution. In order to obviate this criticism, the writer can offer one or two suggestions that have been tried out by other industries.

There are, as everyone knows, certain seasonal industries which run at a high peak for a few months of the year, or maybe at two peaks during the year, and then there are great valleys of unemployment between these peaks. Many of the industries that have these seasonal peaks in employment have attempted to align with these major industries complementary industries that would fit in between the peaks and thereby bring about a leveling process so that those people who work in the major industry would have a rather steady employment during the year.

In doing this they have not been able to completely iron out the peaks and valleys and have steady employment, but have, in a large measure, been able to guarantee in theory and possibility certain weekly, monthly and annual incomes to those who work for them.

The Application to Cotton Textiles.

The cotton-textile industry, along with other kindred industries, is thought to be one of steady operations, but anyone who has studied production and demand of the textile mills has found that there are at least two seasonal peaks in the textile industry at which demand is greatest. There is a rather steady continuous demand between these two peaks, but it is not comparable to the two peak demands.

The last few years have given evidences of the lack of wisdom with which our textile plants have been operated, not only our textile plants but many other

types of industry.

We may say that our textile mills are a rather continuous operating industry and, if operated in line with demand, would give rather steady operation for a fixed number of people, who in the enjoyment of their regular and permanent employment would find peace and happiness and lose the terror that comes with intermittent operations.

Only a few days ago the writer read of an industry that had carefully studied its sales policy for the last few years, and had also carefully studied its production policy, and had found that by operating the plant a minimum of 2,000 hours, production and demand would be properly co-ordinated.

They then called their employees together and informed them that they could start to work in their plant at the beginning of this year with the assurance that during the year 2,000 hours of employment would be guaranteed them with as much regularity of employment as the demand would permit.

Somehow, as I read that, I felt that those employees could go back to their families with a feeling of security, with an ability to plan a budget of their household expenses in an intelligent way, so that when they came to work on the following Monday morning their minds could be relieved of that awful dread of insecurity and economic destitution.

Other plans have been worked out, other methods have been used. Society is now demanding this new responsibility on the part of the employer. Industry can solve this problem. Business, with its scientific methods, with its statistics, with its prophetic insight, can look down the corridors of time for a few months at least and predict a plan. The chaos of 1930 slipped up on us because of intellectual blindness, because of ambitious self-aggrandizement, because of ignorance of our social responsibility.

If this chaos had come to but one industry we might censure it drastically, but since it came to all industries and all businesses, it cannot be charged as wilful neglect, but simply as ignorance and over-emphasis in other phases of our business and industrial life.

The worker who gives his best energies and his best thought to your business in helping to make it a success, must be considered by you. He is the dependent creature in the situation, and the employer must plan as intelligently as he can for his safety. Many of our industrialists, during this depression, have been great philanthropists. They have exemplified great spirits, they have been extremely social-minded. The old adage that an ounce of prevention is worth a pound of cure, is lying at every doorstep, and society is asking that the ounce of prevention be used. This is not the last depression, this is not the last period of unemployment, but it seems that each time they come back in the cycle they become more severe and more complex, hence greater care and greater intelligence must be used to ward them off and to lessen the intensity when they arrive.

I have great faith in the leaders of our American industry and I believe that they will solve this problem, which is not only an industrial problem but a social problem in its largest sense as all life tends to express itself in its social relations.

Arbitration Clause in Sales Contracts Recommended by Arbitration Board

AT A RECENT meeting of the General Arbitration Council of the Textile Industry it was decided to recommend a standardized arbitration clause in sales contracts. The Council's organization is functioning and offers its services in business disputes arising within those branches of the cotton goods industry or trade represented in its membership or arising between any member of any such branch and any other business interest. This offer is made equally to any and all parties involved in any such dispute.

It is important to emphasize that the formation of this Council was designed not only to supplement and enhance the value of existing machinery for conciliation, mediation and arbitration, but also to give an opportunity for arbitration to those who do not wish to use any of the existing boards.

About one hundred men occupying important positions in the various branches of the cotton textile industry have agreed to serve as arbitrators. It is very gratifying that so many well qualified business men have given their co-operation and support by authorizing their names to be included in this panel. It should be understood, however, that the rules of the Council permit parties wishing arbitration to select arbitrators outside of the official panel, subject only to the requirements that at least one of the arbitrators shall be selected from the panel.

The first arbitration conducted under the Council rules afforded a striking example of the advantage of this form of adjusting disputes. In about two hours the entire case was presented to the arbitrators in the informal way which is permissible in such proceedings and the following day the three arbitrators reached a unanimous conclusion. The entire expense of the arbitration was only $38.00 for each side, which included stenographic service.

The officers and members of the Council will at all times be pleased to discuss matters in dispute with a view to encouraging settlement through mediation and conciliation without expense to the parties; in the event of failure of these methods the machinery of the Council will be available for arbitration.

The participating organizations are: The Cotton-Textile Institute, Inc., represented by Walker D. Hines, The National Association of Cotton Manufacturers, represented by Lincoln Baylies; American Cotton Manufacturers Association, represented by Robert Lassiter; Association of Cotton Textile Merchants of New York, represented by W. J. Gallon, Chairman, their Arbitration Committee; Textile Converters Association, represented by M. J. Warner, Chairman, their Arbitration Committee; Textile Brokers Association, represented by George I. Seidman, Chairman, their Arbitration Committee; and National Association of Finishers of Cotton Fabrics, represented by W. L. Pierce, President. The officers of the Council are as follows: Walker D. Hines, chairman, and Frederick A. Colt, secretary. Headquarters are at 320 Broadway, Room 1119.

Roof Insulation in the Textile Industry

The problems of proper roof insulation, the elimination of "sweating" and other phases of the subject are discussed.

By W. S. Wallace*

ROOF INSULATION is used in two ways, which may be classed as "comfort" or as "industrial" uses. The first of these means the exclusion of heat in the summer and the retention of heat in the winter. Spinning and card rooms, hosiery mills, offices, schools, and the like fall within this class. One inch of insulation is generally sufficient for all such buildings, though greater thicknesses are often used.

The industrial uses generally presuppose humidities in excess of normal atmospheric; these can be manufactured or incidental. Examples of the former would be weave sheds and process rooms; examples of the latter would be slasher rooms, dye-houses, and laundries. The former carry, ordinarily, humidities ranging from 85 per cent to 90 per cent whereas the latter may range to 100 per cent due to the escape of free steam and its accumulation under the ceiling.

"Sweating" of ceilings, walls, or windows, is caused by the moisture-laden air of the room coming in contact with those colder surfaces. For ordinary process rooms condensation can occur only in cool or cold weather. The mathematics of "sweating" can be illustrated as follows: If a weave shed is carrying 85 degrees Fahrenheit room temperature, 85 per cent relative humidity, then each 1000 cubic feet of air will contain 1.557 pounds of water vapor. If now during cold weather this air should come in contact with an un-insulated ceiling and should be chilled to 70 degrees Fahrenheit, it could carry only 0.987 pounds of water vapor at 86 per cent relative humidity. The excess of 0.570 pounds would be precipitated on the ceiling as "sweat."

Heat always tends to flow from a warmer to a colder place or surface, there to equalize temperatures. The difference in temperataure between two rooms or surfaces is termed "heat head," the greater the heat head the more rapid the flow. Roof insulation acts merely to keep the ceiling "warm," that is, it presents a barrier against the flow of room heat to the outside air. The higher the room temperature, the higher the relative humidity, the lower the outside winter temperature, the thinner the roof deck—the greater the thickness of insulation needed to prevent condensation. Of all these, the single largest factor is relative humidity.

Critical ceiling heights for mill buildings are determined primarily by lighting and ventilation and to a very small degree, if any, by roof insulation thickness. A very wide room without monitor or other overhead lighting must have a greater ceiling height than a narrow room. If mechanical humidification is to be used, heights must be determined mathematically by the humidification engineers to satisfy their equipment requirements. With too low a ceiling there is small chance for adequate air conditioning.

The base for *heating* calculations as recommended by the American Society of Heating and Ventilating Engineers is a level 5 feet above the floor which is called the "breathing" line. It is customary to add two per cent of the breathing line temperature for each one foot of ceiling height above the breathing line to determine temperatures under the ceiling. Thus with a room temperature of 80 degrees Fahrenheit at the breathing line and a ceiling height of sixteen feet, the ceiling temperature would be $80 + [80 \times .02 \times (16 - 5)] = 97.6$ degrees Fahrenheit; for a ceiling height of 20 feet this would be, $80 + [80 \times .02 \times (20 - 5)] = 104$ degrees Fahrenheit.

This holds for the ordinary conditions of heating and ventilation. Mechanical humidification, on the other hand, presupposes some very definite number of complete changes of air per hour. This *might* make the ceiling temperatures and relative humidities less than those at the breathing line. With all of the foregoing considered, it will readily be seen that ceiling heights seldom directly affect roof insulation thicknesses.

For weave sheds and process rooms in which humidities are kept constant and not in excess of 90 per cent, insulation thickness is found from charts which afford very accurate determinations. For slasher rooms, dye houses, and laundries there *must* be a combination of insulation and ventilation. It is an axiom of insulation that humidities much in excess of 90 per cent cannot be economically controlled by insulation alone. All such roofs should carry a nominal thickness of insulation—say 1½ inch—and all sources of free steam should be hooded and vented to the outside. Powered suction fans are generally needed.

The roofs of the older mills can be very economically insulated to permit of the most modern manufacturing equipment. It is, of course, very necessary that full study be made of the condition of the present roof deck and roof covering and that recommendations provide for sufficient thickness of insulation and its proper application so that humidifying equipment will function as designed. This revamping of the older mills has already started and it bids fair to become of increasing importance.

There remains still another class of insulation akin to these others, structural insulation. For yarn conditioning rooms, tentering frames, and the like, insulation is being used structurally. This means that it replaces in whole or in part other more cumbersome or more costly materials structurally and insulates as well.

Roof insulation is also often used over thin or cupped roofing boards to eliminate cutting of the roof

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covering. There might also be some advantage of this sort for roofs over buildings in which there is heavy vibration. In general it may be said, however, that a good roof of sufficient thickness and well laid, should not be seriously affected by vibration. Provision against this sort of trouble is generally more a matter of flashing design to provide a slip joint between the roof and all vertical surfaces.

There need be no thought of selecting a different kind of insulation for different buildings—weave sheds, slasher rooms, spinning rooms—as this is solely a question of thickness and method of application. Just how the insulation selected shall be applied depends on the kind of roof deck and the slope and on the humidity in the room beneath.

covering selected.

For all saw tooth and similar steep decks it is essential that the insulation be very securely anchored to the deck to eliminate any possibility of slippage. Over wood decks this is done, of course, by adequate nailing; over concrete decks it is safer to use nailing strips about as shown in Fig. 1. The sequence of application of the various units of felts and of insulation shown in Fig. 1 are very important to insure against damaged insulation or to make repair nominal in extent and cost. This is of more moment in the snow belt where saw-tooth valley roofs are too often seriously damaged in the removal of snow and ice. It is also most desirable that design and specifications provide for completion of saw-tooth sash setting be-

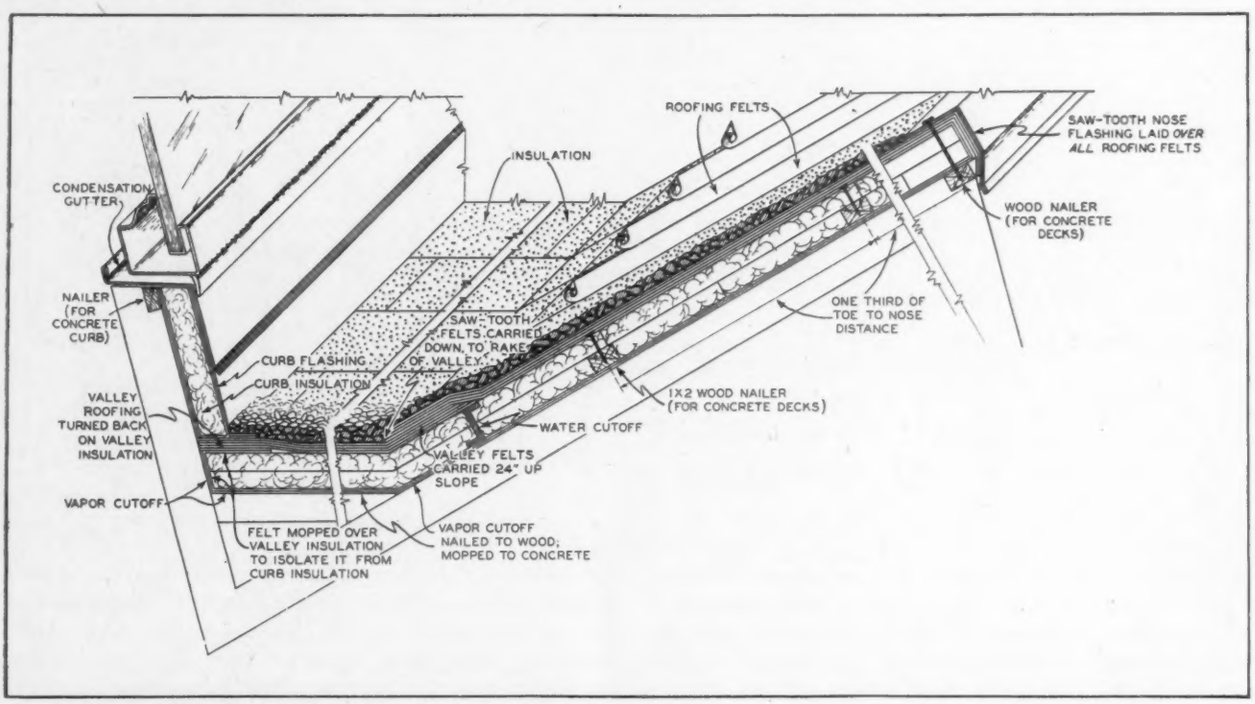

ROOFING FELTS
SAW-TOOTH NOSE FLASHING LAID OVER ALL ROOFING FELTS
INSULATION
CONDENSATION GUTTER
WOOD NAILER (FOR CONCRETE DECKS)
NAILER (FOR CONCRETE CURB)
ONE THIRD OF TOE TO NOSE DISTANCE
SAW-TOOTH FELTS CARRIED DOWN TO RAKE OF VALLEY
CURB FLASHING
CURB INSULATION
1X2 WOOD NAILER (FOR CONCRETE DECKS)
VALLEY ROOFING TURNED BACK ON VALLEY INSULATION
WATER CUTOFF
VALLEY FELTS CARRIED 24" UP SLOPE
VAPOR CUTOFF
FELT MOPPED OVER VALLEY INSULATION TO ISOLATE IT FROM CURB INSULATION
VAPOR CUTOFF NAILED TO WOOD; MOPPED TO CONCRETE

Fig. 1. Showing saw-tooth application of insulation with vapor and water cut-offs. Also shows interlock of insulation and roofing . . . . . .

While there are the several established methods for the application of built-up roofs over boards, concrete, steel, etc., when insulation is interposed between the deck and the roof covering, most roofs are laid as for over concrete—mopped solid to the insulation—provided there is adequate provision against drippage of the cementing bitumen.

If the vapor cut-off (described below) is used over wood decks, the roofing can be hot-mopped to the insulation. But if this or a proper sheathing paper is omitted there would be danger of drippage and the roofing should be laid as for over boards, well nailed (*through the insulation*) into the deck.

On steel decks insulation should be strip-mopped or spot-mopped to the deck. It is generally better to use asphalt for this particular steel deck application as it is rather less liable to drip than pitch. For relatively steep slopes the insulation is attached to steel decks with bolts or metal screws in addition to the moppings. Roof coverings are solid-mopped to the insulation with either pitch or asphalt according to the kind of roof

fore the insulation and roofing is laid.

Requirements for nailing of roofing to insulation (kind of nails, caps, nail spacing, etc.) do not differ from those for roofs over the same slopes without insulation. The nailing of metal base flashings and flanges over thick insulation or over concrete decks should follow the recommendations below.

The roofing contractor most generally has to work against time and often against weather in the application of insulation and roofing. There are certain provisions which, if set forth clearly in the specifications, enable him to do better and faster work and, fortunately, make it certain that the completed roof will serve the owner better and longer.

These comprise vapor cut-offs for wood decks over rooms which are to carry high manufactured or incidental humidities, the initial sealing in of concrete decks with mopped-on felt, water cut-offs through the body of the insulation, and wood nailers for downspout and vent flanges and for metal base flashings.

Water vapor—a gas—will go wherever air will go

and is very readily carried through joints and cracks of a wood deck into the insulation, there to condense and wet the insulation. The best of insulation decreases four per cent in thermal efficiency for each one per cent gain in weight from wetting. Proven data (U. S. Government) shows that several standard insulations have been found to take up *four* times their dry weight in water. Data published by the American Society of Refrigerating Engineers shows that water vapor carried into insulation by air infiltration is the cause of untold losses every year and a matter of the gravest concern to industry.

In other words, insulations of the roofing type are "sponges." They average, by volume, 75 per cent voids and only 25 per cent solids. Any of them *can* be rendered proof against water and against water vapor at the factory, but the cost would be very great with the doubtful expedient of permitting those who sell and those who apply to be careless at the building owner's expense. Reasonable care before, during, and after application is the more logical procedure.

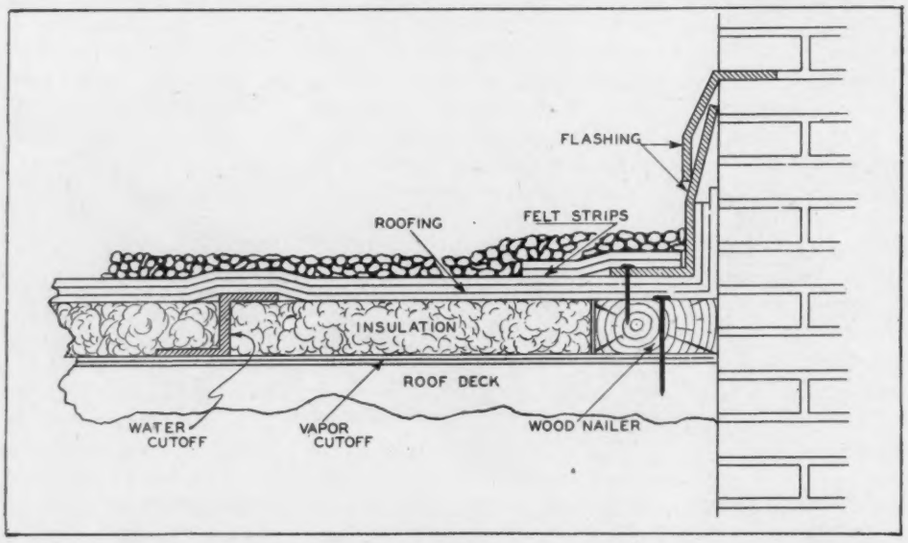


Fig. 2. Showing flat deck application of insulation with vapor and water cut-offs. Also shows metal base flashing installation . . .

While several types are used, the vapor cut-off consists essentially of a multiple layer of roofing felts or of a particular kind of "rubber" roofing laid directly on the board deck, nailed thereto, and mopped over with hot bitumen to receive the insulation. (See detail, Fig. 2). Together with the roof covering this vapor cut-off sandwiches the insulation between two layers proof against water and against water vapor.

With the gravel spudded off and some minor repairs made, existing roofs serve admirably for this vapor cut-off. After the roof has been spudded it is split over any bad roof planks, the planks are replaced with new, and the roofing is patched to receive the hot mopping into which the insulation is bedded.

Buildings with concrete decks present two major problems to the roofer. He is often forced to lay the roofing with, of course, the insulation, before other trades have left the roof in order that plastering, floor laying, or some other operation can be completed on schedule. Again he may be called on to work during inclement weather. Damage which may be done to both roofing and insulation is serious enough at the time, but later the owner may be faced with more or less costly replacement.

To provide against such contingencies with concrete decks it is recommended that the specifications provide for the application of two plies of 14 pound roofing felt mopped to the slab in two-ply construction with laps stuck. These should *not* be mopped over until the insulation is laid, but should be turned up four inches against all parapets and made water-tight at all downspouts with temporary thimbles. The roofer can then complete the work after all other trades have left the roof and he need not work during bad weather. The latter is of especial importance where snow and ice are encountered.

Provision against sudden showers, over-night and week-end stopping of the roofing, and against spread of leaks from the sometimes seemingly inevitable defects or abuse can be made with water cut-offs through the body of the insulation. These are now practically standard in good construction. They consist of strips of 14 pound roofing felt set along lines approximately two feet from all parapets, penthouses, and monitors, around all downspouts, and throughout the body of the roof in squares forty or fifty feet on a side. See Fig. 1 and 2.

These should extend out on the roof about four inches up the edge of the insulation, and out on the insulation about four inches. There has been some question about the number of plies, but these can be one or two. One ply well laid seems to have been sufficient.

It has been suggested that engineers who may decide to include water cut-offs in the insulation might well indicate their desired location with faint lines on the roof plan. This would serve to make clear to the roofer and to his foremen just where these cut-offs are to be set and it would further serve as a permanent record of their location during the life of the building.

No insulation will hold nails against a direct pull (parallel with the nail shank) and it follows that the nailing of metal base flashings, of downspout flanges, etc., into the insulation alone will not hold them in place even though well felt-stripped. If the insulation is over one inch thick or if the deck cannot easily be

nailed into, there should be provided wood nailers nailed or lagged to the deck. These nailers should be the exact thickness of the insulation and two inches wider than the girth of the metal nailed to them. See Figure 2. For permanence they might well be brushed or hot-dipped with creosote.

From time to time it has been asked whether or not roof insulation can be applied on the ceiling just as effectively as on the roof deck. If the answer involved thermal efficiency alone, or if there were no humidities in excess of normal average atmospheric, the answer could be "yes." But other than the fact that ceiling application is generally much more costly than laying on the roof deck, there is always the virtual impossibility of vaporproofing ceiling insulation.

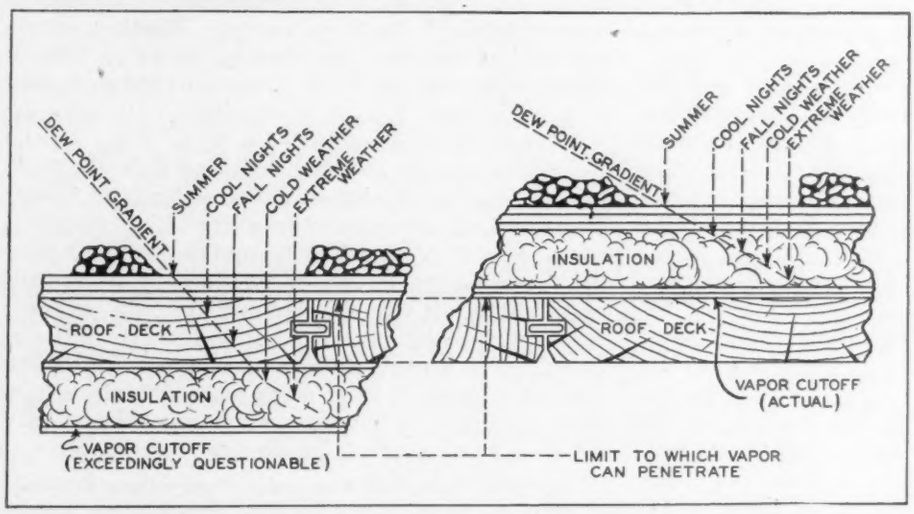


Fig. 3. Showing relation of dew point and room water vapor penetration.

Roof insulation is figured to keep the dew point within the insulation itself even at the estimated low outside temperature. As before stated, the roof covering and the vapor cut-off serve to sandwich the insulation between two waterproof and vaporproof layers so that it cannot be wetted from top or bottom. This makes the dew point *potential*, not actual. See Figure 3.

With ceiling application, on the other hand, there is little chance of preventing the water vapor from going clear to the under side of the roof covering proper. Under these conditions failure of the insulation and rotting of the roof deck are inevitable. Standard application is based on actual experience and is fundamentally sound; when humidities are mechanically sustained in excess of normal atmospheric conditions there is no middle ground.

The rotting of wood roof decks and supporting timbers is caused by fungi—microscopic plants—which require moisture and heat for their development. "Wet rot" and "dry rot" fungi are merely two groups of these fungi alike in kind and effect, but having different physical characteristics.

The former thrive under conditions of greater moisture and show the long, white, hair-like root systems—mycelia—which are readily visible to the eye. The latter thrive under conditions of more limited moisture and have no mycelia, thus causing many to believe that "dry rot" is not a fungus manifestation, which, nevertheless, it actually is. All fungi reproduce by spores which distinguishes them from the allied plants—yeasts, molds, and bacteria.

An allied cause of ceiling and wall blacking is the molds, but these generally merely blacken the paint rather than attack the wood itself. They can be detected by scraping the paint to see if the wood underneath is sound or actually fungus infected.

Fungus of either class breaks down the wood structure by first secreting "enzymes" to soften the fiber which is then absorbed by the plant. No fungus can survive under conditions of immersion or of absolute dryness. Water vapor—a gas—will not support fungus growth.

Fungus growth can be controlled in one of two ways: 1—by absence of moisture; 2—by treating the wood with some poisonous liquid. There are over 9,000 different fungi of which about 4,500 have been cataloged. A certain few are commonly found in mine timbers, another few in railroad ties, another in mill timbers, and the like. The various fungicides have varying inhibiting effects on the various kinds and groups of fungi. About the most effective all-around preservative is corrosive sublimate, but it is very dangerous to use except in central treating plants and, further, is readily soluble in water so can be easily leached out of the wood. Another effective, easily used, and relatively permanent fungicide is coal-tar creosote. Its only objection for mill decks is that it will strike through white paint unless the wood is shellacked after creosoting and before painting. A newer solution is zinc meta-arsenate which is said to be very effective.

Soft woods and the sap wood of the harder varieties like long leaf pine, when properly treated with an effective fungicide, last about as long as, for instance, long leaf heart pine untreated. Fungus growth which has gone too far into timber cannot be checked by any of the fungicides.

Roof insulation used over rooms carrying high humidities does actually inhibit fungus and mold growths because it serves to prevent the water vapor—a gas—from condensing into the water—"ceiling sweat"—which fungus and mold must have to grow. Dense long leaf roofers adequately insulated, the insulation laid over a vapor cut-off and well roofed, is the best insurance against roof rotting and paint molding, as well as against dripping.

Adequate preservation of the timber—roofers *and rafters*, is, of course, of very real value as any sap wood is given the life of the heart wood, but preservation alone cannot possibly prevent ceiling sweating and less effective thermally than untreated.

An Interview on Shrinking Cotton Goods

IN CONNECTION with the current interest in the subject of pre-shrinking cotton goods, we are reproducing at this time an interview recently conducted with an expert long identified with textile finishing, which followed an informal discussion on the general subject of shrinkage and shrinking. The information is published as being of possible benefit to those concerned with the problem at this time.

As indicated the discussion was in the nature of an interview, and the questions submitted, with the answer to each as given, will be found below:

Question No. 1. Explain why it is that woven cloth contracts in width, from the loom width, in finishing processes.

In the process of bleaching and finishing, you will appreciate that the cloth is always drawn warp-wise. This of course has a tendency to stretch the warp thread and naturally contract the filling thread. The amount of the stretch in the cloth will depend entirely on the amount of sharp turns and of strands being passed through the finishing department. The longer the travel of the goods from one process to another, and the more corners the goods have to turn, the greater the lengthwise stretch will be. The goods, having been stretched, will have a natural tendency to spring back somewhat, owing to the fact that the filling threads through the goods will tend to assume their relation with the warp threads, which is a matter of "hills and valleys" in both the warp and filling, which, owing to the loom construction, tend to find their natural place as at first woven.

Question No. 2. As regards the finishing processes, tell which processes exert a tension on the goods filling-wise, causing an increase in width with a consequent decrease in length. It might be well to point out here why tension in one direction will affect the other direction of the cloth. Then point out, on goods for laundering, for example, why these goods have a tendency to lengthen out in laundering.

In finishing cloth, a tentering machine is the only machine which exerts a tension on the goods filling-wise, causing the width to increase, but not necessarily a decrease in the length. Any decrease in length would be caused by abnormal stretch in length. Where goods are tentered abnormally, so that the operation has drawn them in longitudinally, there has been a decrease in the "hills and valleys" of the filling thread, which has caused an increase in the "hills and valleys" in the warp thread. This having made the hills and valleys in the warp thread deeper has necessarily made the distance from one end of the cloth to the other shorter. When these goods are finished, they are held in this condition, but when they are wet in the laundry, the tendency is for the filling thread to re-assume its proper relations to the warp thread, thus shortening the weft thread, and lengthening the warp thread.

Question No. 3. Discuss next the matter of requirements in which there are so many different desires. For instance, you might take denims as an illustration. Point out why it is that the same method cannot be applied in every case. Tell what two or three of the different requirements are, and why they want them that way.

In the cotton goods market the demand for shrunk goods has not been stabilized. We have what is known as a "water" finish, again what is known as a "pre-shrunk" finish, again what is known as a "super-shrunk" finish. Some of these finishes are made on the regular finishing ranges without paying much attention to the losses of the goods in either direction. Some are allowed to contract in length and width to a certain point, and others are forced to contract to a given specification. For instance, some of the goods are finished at loom length; others at a loss of approximately 1¼ yards to the cut, while others at a loss of approximately 3 yards to the cut. Whether a mill company or finishing plant can afford to do this or not, depends entirely on the attitude of the customer.

Question No. 4. Next discuss shrinkage here in relation to other fabrics.

The demand for so-called shrinking up to the present time has been confined almost entirely to broadcloths, denims and such character of cloth for overalls and work pants. The shrinkage of shirtings is not so much a problem as the shrinkage of denims, because of the fact that the shirtings are fully bleached, in the first place, and are very absorbent, while the denims come directly from the loom, and the slasher size being present, it is much more difficult to wet them through, and thorough wetting is a great part of the problem of shrinking goods of this character.

Question No. 5. Do high-count constructions shrink more or less than low-count goods? Explain why, fully.

High-count constructions contract according to the preceding operations. Generally, on high-count work there is more allowance made for width losses, but this is generally compensated for by length gain. In some cases a fairly high-count construction finishes loom width, but where this is so, it is accomplished through the use of tentering machines, and the goods on laundry washing will shrink or contract to such an extent that if they are made into garments they will be practically useless after the first laundering.

Question No. 6. Do cloths that have a balanced construction (that is, with about the same number of ends and picks, and about the same counts of yarn) shrink more or less than goods in which there is a considerable variation in the ends and picks per inch, or in the yarn numbers of warp and filling yarns?

Cloth which has a balanced construction would not necessarily contract more or less than those having an unbalanced construction. Here again the result would depend upon the preceding operations. If the cloth has many long straining pulls through the bleaching and finishing equipment, the length gain is always greater, as are the width losses.

Editor's Note.—The correspondent supplying the information in the interview above has offered to devote time necessary to the discussion of any specific questions with regard to pre-shrinking, etc., which may be submitted. Readers are invited to propound any further inquiries on the subject concerning which additional information may be secured.

Discussion on Plain and Fancy Weaving

A wide number of current problems in the slashing and weaving of cotton and rayon fabrics covered in Charlotte meeting last month

A VARIED LIST of weaving questions, touching on both plain and fancy weaving, constituted the subjects discussed at the meeting of the Weaving Division of the Southern Textile Association, held at the Manufacturers' Club in Charlotte, N. C., on Friday, March 20th. E. A. Franks, superintendent, Dunean Mills, Greenville, S. C., who is chairman of the division, led the discussion, assisted by Walter C. Taylor, Association secretary.

The first question referred to solid rayon warp, and asked, "what is the best weaving tension—tight, medium or slack?" J. B. Shelton was the first to respond, saying this depends upon the class of fabric; that "on shirt fabrics the tension should be slack, but if you are running crepes the tension should be as tight as you can run it in order to get the best face on the goods."

G. V. Hanna, overseer of weaving, Cramerton Mills, said that he prefers a tight tension on crepes, voiles and taffetas in order to get the required finish on the goods. "I agree with Mr. Hanna on crepes," said the chairman. "You must run the warp as tight as possible in order to get good running work, but I do not agree on voiles, because on voiles you should run a medium tension, as in a voile the filling is supposed to do as much turning as the warp. When it is finished it is supposed to look like a screen wire, if not you don't get the right finish, and if you run too tight a warp, the ends will lay too close together."

Thomas Nelson, dean of the textile school at Raleigh, told of two samples which had been submitted, both of the same construction, but showing a different appearance, resulting, he concluded, from a difference in warp tension in weaving. He agreed that on voiles, "you must put the filling in the cloth to correspond to the warp, and if it is too tight, you will not get the effect you desire in the finished cloth."

"What is the best method to draw in a rayon crepe warp for the loom?" was the next question. Mr. Nelson said he had just been in a mill where they were drawing in straight from the back to the front, from the right hand side; that in making drawing-in drafts it is his principle to make them just as simple for the weaver as possible. He said he could see no advantage in the skip draft, as the parts can be set just as well with the plain draw. He added, however, that it is a matter to be worked out by the mill, according to their practice.

J. D. Pell said he gets better results by using the skip draft; that the ultimate aim is to get the best face and feel, and that he gets these with a skip draft. He added that another advantage is that "you can weave so many different things on it without drawing in the warp every time." He does not draw in the drop wires, using the open type. Mr. Hanna reported the use of the skip or staggered draft. Mr. Johnson, overseer of weaving at Dunean, said "it runs better to draw it the plain straight way, but I do not know which way it will finish better."

Henry Lawrence, overseer of weaving, Drayton Mills, Spartanburg, said he "draws it straight and draws the drop wires two in a place on the rod, first and second harness on one line of drop wires, with one eye on the rod for each harness." The cloth in the gray looks better, he said. S. J. Adams pointed out that he prefers the straight draw, that with the mixed draw they have to run the warp tight, and if there is a tail-end it catches the threads in the harness eye and cuts out five or six ends. Mr. Franks brought out that drawing in plain, there is a tendency to cause the accumulation of strings and short fibers on the shaft to drop down onto the floor and dispose of themselves.

Methods for combing or leasing warps to be drawn or twisted in were next asked for. Mr. Lowe of Caroleen said he does not use drop wires in his patterns. Mr. Hanna uses the cross-lease, making his warps on a Sipp warp machine. Mr. Adams at Judson says he uses a home-made warper, with a paper run across the warps (rayon) and when he gets to the looms he puts the comb in behind the paper and twists the ends; he does not lease them.

Mr. Lucas of Victor-Monaghan pointed out that of course, if an end-to-end lease can be gotten running rayon that that is desirable, but that he does not believe it is always possible on cotton equipment, and that the two-and-two is the best next. He said the only way this can be done is with a Johnson type slasher and horizontal warper. Mr. Pell pointed out that there is a cross-reed available for it, but that he has not been able to use it satisfactorily. On certain types of yarn, he said, you can do it, but you would have to have a movable reed in order to get the strings through.

Taking Cloth Off of Looms.

The chairman next asked whether it is best, on print cloth cotton numbers, to take off rolls of 120 or 240 yards. Mr. Brady of American Spinning Company said they take theirs off in two-cut (120) yard rolls, because their specifications call for this. E. H. Thomas of Abbeville brought out that this depends on what kind of cloth is being made and the method used for taking the cloth off. He pointed out that if the larger rolls are made, and a minor weaving defect shows up, it will appear in just that much more cloth before it is detected in the cloth room.

"I think it depends on how you take your cloth off," reported Mr. Short, overseer of weaving, Consolidated Textile Corp., Lynchburg, Va. "I have two men who take off the cloth on 1,600 looms, and if we took it off in 120-yard rolls we would have to put on more men. I take it off in four-cut rolls because I

can do it with less men."

"We run ours as large as we can," said C. L. Chandler. "Unfortunately we have 926 A model looms, and we have to take it off of them in 120-yard lengths, but on our E Models we run the rolls larger because we find an advantage in doing it. We do not have so much waste in cutting the cloth in the cloth room."

The finishers want the larger rolls, W. E. Wall, overseer of weaving, Lancaster Cotton Mills, explained, and on 80x80, he runs 250-yard pieces. He said he does not have as many seconds with the larger rolls. He has been doing this for six or seven years, he said.

"What is the proper percentage of stretch to take out of cotton yarn on a slasher?" was the next question. Mr. Cantrell said he considers about one per cent stretch correct, and others present agreed. Mr. Short brought out that at the meeting in Montgomery (reported in the March issue of COTTON) the men present there reported finding as much as four per cent, considering two per cent not excessive. "A few years ago," Mr. Short said, "before we went onto the multiple system, we ran tests for several weeks to determine the major causes of loom stops, and these tests show quite a few stocks for 'tie-backs.' I decided to see if I could eliminate that stoppage by eliminating some of the stretch on the slasher, and I did everything I knew to do—lined and leveled the slashers and creels, etc.—and I found I was getting from 1¾ to two per cent. I got the master mechanic to dope me out some roller bearings for the slasher creels, and we have had these on for two years, and now I have a standard of one per cent. I test my slashers once a week for stretch, and if I find one over one per cent I have something done to it. We have noticed that eliminating this stretch has also given us a little better breaking strength in the cloth. All my slashers are equipped with these bearings."

SOME very interesting discussion is reported here concerning a variety of plain and fancy weaving subjects. This is a report of the meeting held by the Weaving Division of the Southern Textile Association in Charlotte last month. Readers interested in any of the subjects brought up are invited to express their views further on them in letters to the "How Other Men Manage" department of this magazine.—The Editor.

How to Prevent Rusty Selvages.

There was next a brief discussion as to the speed at which slashers on 30s warp should be run, it being pointed out that this depends on the number of ends in the warp, reports ranging from 28 to 40 yards a minute. In connection with this discussion, there was some reference to automatic control equipment, several indicating its use. With this equipment, it was stated, the pressure on the cylinders is held to about one pound, with a temperature ranging from 210 to 240 degrees.

The next question asked how to prevent rusty selvages (two-ply selvages) without over-drying the remainder of the warp. Several present reported that they had relieved this trouble by painting the beam heads; one man adding that he puts a piece of leather on the end of the presser roll to prevent the iron roll from scraping the paint from the beam head. Others said they run the selvage ends separate from the warp allowing the selvage to hit the cylinder sooner and therefore have a longer contact with it. F. D. Lockman, superintendent, Lockhart Mills, Lockhart, S. C., said, "I think it is possible to control rust considerably by the chemical used in the sizing compound," explaining that he meant there might be something in the compound which would react on the iron head and cause it to rust.

A member present asked for the causes of a "moire" effect on rayon fabrics, explaining that he meant thin places where the loom was stopped and started up again, either after shutting down, or after a pick-out, etc. "I do not believe you can eliminate that," said Mr. Franks. "Leveling the harness will do some good. You can stop it if you could slacken the warp and get it back like it was before. There is a new loom made now that will level the harness and let the whip roll down and slacken the warp, and then raise the whip roll and put the warp in the same position where you left off, but with the present equipment it is a pretty hard thing to control."

In response to a question, the inquirer said he is using the Roper type of let-off. Another member reported that he had once had the same trouble on shade cloth, but after changing to the Roper type of let-off, he got away from it.

The next question asked, "What is the life of twine harness, and what makes the back harness wear out first?" Reporting on the life of twine harness, Mr. Brady of American Spinning Company said he has some running on 80x80, which average 10 months of night and day operation. He said he has found the back harness to wear out first, but couldn't explain it except by the fact that it travels a little further, and that it is more exposed to moisture than the front harness, since the action of the reed tends to fan the moisture off of the front harness.

W. E. Wall, of Lancaster, said they keep a record on their cotton harness, and find that on 80x80 it will run, night and day, for 18 months, that 20 months was their record, but that some of the same construction ran only six months. He said the life is largely due to the kind of yarn used in making the harness.

"The life of harness depends on the number of yarn you are running, the percentage of size you are using, and the size mixture," said Mr. Short. "If the size is heavy it will wear out quicker. If you are on coarse yarns it will not last as long." Mr. Pell said a man had told him that his harness was not getting a full life because his size compound had so much acid in it that it had an effect on the yarn.

Mr. Franks brought out that there is more shedding on the back harness than on the front harness, as the yarn is rougher, and that it is logical to assume that there is a greater strain on the eyes in the back harness than in the front. Mr. Gibson agreed, adding that "the back harness travels further and gets more

wear as it gets the first chance to chafe the yarn. In regard to cotton harness wearing out," he continued, "it has been so long since I used them I have about forgotten, but my theory was that one thing that makes them wear is the fact that we are sizing heavier than we used to, and also it has been my contention that in going to a thin boiling starch, of lighter fluidity, they put more acid in it to break it down and leave a trace of acid in the starch which cuts the harness out." Mr. Franks added that most weavers work with their sleeves rolled up, and that, since their arms rest mostly on the back harness, the perspiration would have a tendency to affect the harness.

"What is the best type of shuttle to use for rayon crepe filling? Which is best, the oil-treated or natural wood shuttle?" was the next question. Mr. Pell said he uses a fiber-side silk shuttle with the Paterson tension eye. "I have never used any natural-wood shuttles," said Mr. Lawrence. "I use oiled shuttles. The Paterson eye is all right on hand-threading looms, but where you are running automatic looms you cannot use it." He said he thought he would try out some natural-wood shuttles and see what results he got. Mr. Short said he uses an oil-treated shuttle on cotton, as he always thought it would last longer.

E. A. Franks, superintendent, Dunean Mills, who led the discussion at Charlotte . . .

Jeff Davis reported that once a week he uses a mixture of Japan wax and tallow on his shuttles in order to make them smoother and harder, that it increases the life of the shuttles; his run 18 months, day-time, 55 hours a week.

Mr. Gibson said he had had no experience with oil-treated shuttles; that he does put a little tallow on them and in the screw-eye about once a week to slick them up as this seems to make them run better.

The next question asked for the best kind of fur to use in lining shuttles for rayon. Muskrat fur got the largest number of votes, Mr. Hanna declaring that he had found "Nutria" hide to be best. The next inquiry asked as to the best speed to run rayon on slashers. Between 12 to 15 yards a minute was considered best; one man varying from 9 yards per minute on 7,000-end warps up to 18 yards a minute on lighter warps. As to the proper amount of stretch to take out on rayon at the slasher, the reports varied from 4 to 6 per cent.

Hard and Soft Waste at Slashers.

"In changing sets on slashers, on print cloth, what is considered a reasonable amount of waste per beam, both sized and unsized waste?" was next asked. A man from Cooleemee, N. C., reported 20 yards per set, explaining that yardage was the proper basis to use for comparison, as a difference in yarn numbers would affect a comparison of so many pounds. Mr. Bunton said his waste at the back runs about ¼-pound a beam, and that he finds practically no waste at the front, using a gummed tape about two yards from the knots. Mr. Hooper of Pelzer reported about 8 to 10 yards, behind and in front. Mr. Bobo said the amount of waste depends on the way the yarn is warped, that ½-pound to the beam should be sufficient in the back, but that he has never been able to get less than 25 yards in front, from the size box to the front.

Causes of Slack Selvages.

"What is the cause of slack selvages in cloth?" was the next question. F. D. Lockman replied that, "we find by not putting in as many threads in the lease combs near the selvage helps us. If you put the same number of threads per dent near the selvage you might have a tight selvage." Mr. Bobo and Mr. Hooper said the main cause of slack selvages was improper preparation in the warper room. Mr. Tiller added untrue beams and untrue spindles in beams as other possible causes. This concluded the morning discussion, and the members had a "Dutch" luncheon, where they were addressed briefly by David Clark, of Charlotte.

The first question of the afternoon session asked if anyone conditions rayon or crepe filling for killing twist. Arthur Mason reported that they condition cotton crepe filling with live steam and then let it set for a half or a whole day before using. They use enameled quills.

Using Pick Counters on Looms.

"What percentage of increased production do you get in the weave room through the use of pick counters?" was the next question.

Mr. Short said he did not think pick counters would increase loom production, but explained later he did not mean that he did not like pick counters—as he wished he had them on every loom—but that he did not see how they could increase production.

On the other hand, Mr. Gibson explained, "we think they do. You can check up on the individual loom with them, and see whether each loom is getting the production it should get. I have run with them and without them, and I like it better with them. There is so much discrepancy in paying by the cut. Your percentage might show up even though you got the same number of cuts off. With the pick counters we can follow up each section and each loom, and if there is a weak place we can put our finger on it."

F. D. Lockman says he does not use pick counters, but that he does not think they could increase production, but that they will make it easier for the overseer or other man in charge to know what his machines are doing.

A member asked Mr. Gibson as to the figures of his production increase, and he said, "we did not get the exact figures on the weaving, but we did keep them on the spinning. When we first put hank clocks on the

spinning we were getting 89 per cent, and the next week according to the hank clocks it jumped to 91 per cent and then to 98. I do not think we got that much difference in the weave room, but the increase was noticeable."

A member next asked as to whether sizing compound or gum is best for sizing 40s to 60s. Mr. Lockman expressed a preference for sizing compound, as did Mr. Short. Another question was what is the best percentage of size on warp for a 128x68 broadcloth, 40s combed warp yarn. Mr. Lawrence said, "All you can get". There was a difference of opinion expressed here, several declaring that with a sizing compound only it is not possible to get a high percentage of size on this yarn. Mr. Lockman disagreed, declaring that up to 16 or 20 per cent could be put on satisfactorily. Around 10 per cent for this class of work was generally recommended by those participating, Mr. Lockman suggesting 16 per cent. In a later discussion of this subject, Mr. Lockman indicated that the kind of size compound used made a difference, saying "you can put 10 per cent size on yarn and have it just as rough as can be, and you can put 15 per cent on and still have it pliable and soft; or you can put on 5 per cent and it will not dry or put on 15 per cent and dry it. The chemicals in the compound have a lot to do with how it dries, how much you can put on, and how it feels." Another man brought out in connection with the question between sizing compound and gum that undoubtedly some of the compounds contained gum.

A brief discussion on the problem of rowy or wavy cloth developed that the let-off is largely responsible for this difficulty. Another man asked which is better for marquisettes, the 12-inch or the 14-inch doup. One man said he uses the larger one on a 50-inch loom, and 12-inch on 40-inch looms.

"Crow-hops" and "catch-cords" were recommended as means of catching filling that has to be clipped off in weaving marquisettes. The man using the "catch cord" explained that he has no trouble with tight picks; he has "string pullers" in the cloth room to cut out the cords about every yard.

A reasonable percentage of filling waste was next asked for. Mr. Gibson said that using an old-style feeler, he gets about .18 per cent, and with the new type of feeler it runs about 1.38 per cent.

"On 54-inch looms running 46-inch, 40x38, 6.15 yarn goods, and 50-inch looms running 44x45 sheeting, two ends per dent, what causes reed marks in the center of the cloth, 30s warp and 28s to 33s filling? We have a high sand roll and whip roll." This was next asked. Mr. Lawrence said he had found this to be caused, using steel heddles, because on the wide frames the harness bucks in the center a little bit causing a tight place, and if the man would loosen them up and get the heddles to working as they should, he would get away from that. Mr. Lockman added that on cotton harness, under such conditions, there is a tendency for it to rise in the center and make the eyes higher.

"What advantages are there in a center filling fork in weaving?" was next asked.

"There are two advantages," said Mr. Lawrence. "One is you can run a little wider piece of cloth in the loom, and the other is when the filling breaks the loom will stop on the pick the filling is broken on. There are about two dozen disadvantages. The biggest is kinky filling, and the other 23 don't matter after that."

A speed of about 144 r.p.m. was recommended for a loom running on rayon voiles and crepes, in answer to the next question. Another man asked as to beaming Celanese on cotton warpers, for rayon voiles. Mr. Franks said there was nothing different from running other types of rayon.

The regular shuttle, lined with fur, was recommended as the best for running rayon on automatic looms.

"What do you consider the best method for general cleaning in the weave room?" was next submitted. Mr. Lockman said, "we use compressed air. It doesn't get the looms as clean as a brush would, but we figure it is more economical."

"A pretty good system is this: we use the blow-pipe, and use it because it is cheaper, but every once in a while we have the looms cleaned off with kerosene when the warp is out, and when you do that you can clean them better with the blow-pipe afterward," suggested Mr. Gibson.

According to the answers received to the next question, it is general practice among those weaving rayon warps to run the beams straight over in the slasher creel, instead of using the cotton method, inasmuch as it keeps every beam at the same tension, and prevents the yarn from rolling.

Mr. Hooper said he is changing from twine to steel harness and would like to know the life of the steel heddles. "I don't know as anyone could tell you the life," said Mr. Franks, "as nobody ever wore any out. At the textile show they had some steel heddles that had been running for twelve years and they looked all right." Mr. Lockman said he had been using them for four years, and that they do not know the life of them. Mr. Rogers told of some he had seen which had been in operation for 25 years, and Mr. Gibson has a mill which is using the ones started up with seven years ago. Mr. Short says about half of his weaving is equipped with steel heddles, and that there is not enough difference in the loom stoppage tests between the steel and twine harness to be noticeable.

Someone asked for the best method of determining stretch on slashers. Mr. Short explains that he does this with a yardage counter, and likes this because it enables him to measure the amount of stretch between the section beams and the size box, as well as for the entire machine. Mr. Lawrence explains that he simply marks a certain length on the warp in the back, and then measures between the marks at the front to see how much stretch there was.

Mr. Hooper asked if the Roper type of let-off would "fill the bill in weaving, on 30-inch looms, 25-inch goods, 40x32, 30s warp. Mr. Lockman said it would, but that an important point was in the setting of the drive rod arm, in accordance with the pickage in the goods. Another man said he uses this let-off on as low as 22 picks. This virtually concluded the discussion and the meeting was adjourned.

Carding and Spinning Topics Discussed at March Meeting in Atlanta

A WEALTH of practical information is contained in this complete report of the discussion on carding and spinning subjects, at the recent meeting in Atlanta. Elementary fundamentals were discussed in detail, while in the same meeting a number of newer developments in carding and spinning were reported on.

A careful study of the discussion on the various subjects will undoubtedly start your thinking on different lines concerning many of these topics.

A VARIETY of subjects pertaining to carding and spinning, and involving both fundamentals of these processes as well as recent developments in them, featured the discussions at the semi-annual meeting of the Textile Operating Executives of Georgia, held at Georgia Tech, in Atlanta, on Friday, March 13th. A representative attendance from a large number of the state's mills, as well as a number of visitors, combined with a carefully planned and expertly conducted meeting to make the discussion unusually profitable.

Frank K. Petrea, superintendent, Swift Manufacturing Co., Columbus, Ga., who is general chairman of the organization, presided at the meeting, which consisted of two sessions, one on Friday morning covering carding, and one on spinning, held during the afternoon. D. D. Towers, superintendent, Anchor Duck Mills, Rome, Ga., led the morning session on carding, and George S. Elliott, superintendent, Pacolet Mfg. Co., New Holland, Ga., conducted the spinning discussion. At a brief business session during luncheon, Mr. Elliott was re-elected as a member of the executive committee. A report of the discussions at the two sessions is presented in the following paragraphs.

Practically all of the subjects discussed had been included in a prepared questionnaire, and each question had been assigned to several members.

Curling in Opening Machinery.

The first question presented by Chairman Towers was, "Have you had any experience with opening machinery curling cotton? If so, are there any bad effects on the cotton from this curling? What have you done on the machines to reduce curling? State type of machine involved—whether horizontal, vertical opener, etc."

A. E. Massey, superintendent, Exposition Cotton Mills, Atlanta, was first called upon. He said that, "I have had experience with Crighton openers curling cotton, and I think it was largely in the drafts not being properly adjusted; the nature of the machine makes it so that the cotton may not get out quickly enough." As to the effect of curling, he said that curled cotton does not card as well. As to further effect, he replied that, "we did not run any actual test. We tried to stop the curling, and this was done by adjusting the draft." Mr. Towers asked if he had moved the beater, and Mr. Massey said this setting was a matter of cleaning only. The chairman asked as to the speed at which the opener would curl. Mr. Massey replied that this is a mathematical problem, as to how many revolutions the cotton should make in going through. He said curling would result at any speed if the cotton remains in the machine too long. "A Crighton should not be run over 600 r.p.m.," he said.

"Do you not get a little draft from the beater itself?" asked Mr. Towers. "Doesn't it generate draft, and if you changed the speed, wouldn't that affect the draft?" Mr. Massey said the centrifugal force of the beater might have a little effect, but that he did not think this would create enough draft to have an effect on the travel of the cotton. Mr. Towers expressed the belief that the draft in a Crighton could be sufficient to pull the cotton through the machine.

G. R. Brook, superintendent, Mary-Leila Cotton Mills, Greensboro, Ga., responded next to the question, saying that, "we have a vertical opener, but the only trouble we have with curling is when the machine gets choked up or when the draft is too low. We have not tried changing the setting to prevent this." He said he did not believe the cotton would clean as well in subsequent processes if curled. His beater speed is approximately 720 r.p.m.

The chairman next read the report of William Keighley, of Berryton, who stated that sometimes "cotton after coming through the Crighton opener has a curled appearance, and this does hurt the staple." He said the yarn breaking strength had been decreased by 5 per cent as a result of this curling. Mr. Towers asked if any others had tested the effect of curled cotton on breaking strength, pointing out Mr. Keighley's experience, indicating that Mr. Keighley could not change the speed of the beater without changing motors inasmuch as his machine was directly driven. Mr. Brook stated that he did not believe a decrease in breaking strength, in using the vertical type of opener, was generally true.

Drafts and Speeds Must Be Correct.

Chairman Towers here related a personal experience. "As to the vertical openers," he said, "I have never been able to find where it damaged the breaking strength provided the speeds and drafts were right. In the case of grid bars instead of screen it is necessary to set the bars so they will present a rather full surface on the inside. You must not have a scraping action, as this will curl and damage the staple.

"Also, there is a critical speed, and it looks to

us as if you go above it you will get no advantage; 720 r.p.m. is as fast as we have been able to run the beater. Too low a speed will not give proper cleaning."

Mr. Towers then reported an experiment of taking off the exhaust fan from a Crighton in a cleaning line and finding that the machine would sling the cotton right on out, due to the draft created by the blades on the beater.

The comparative merits of grid bars and screens in the vertical opener came up in a question from Frank E. Heymer, of Piedmont Cotton Mills. Mr. Brook stated that they started off with a perforated screen, and then adopted the grid bars, and get better cleaning. A. E. Massey declared that, "it is entirely a matter of stock and how much cleaning you want to do. If you are running low-grade cotton you do not want to take out any cotton, and the screen will retain a lot of the stock, and yet get a major portion of the impurities out. The grid bars will do more cleaning than the screen."

FRANK K. PETREA, superintendent of Swift Mfg. Co., Columbus, Ga., who is general chairman of the Textile Operating Executives of Georgia . .

"Vertical Not a Cleaning Machine."

"You can get more stock in the box with the grid bars, more flyings, than with a properly made screen," said Mr. Towers. But, he continued, the vertical opener "was never made for a cleaning machine. It is an *opening* machine to open and bloom the stock, and, in my opinion, it is the first machine the cotton should go into. It gives an opening effect that you do not get in any other machine, and if you get out the sand and heavy impurities in it, that is what it is made for."

Mr. Heymer asked if anyone had tried putting a Buckley beater ahead of a vertical in the cleaning line. The chairman pointed out that some manufacturers recommend this while others prefer the opposite arrangement. He reverted here to the question of draft in the opener, outlining a hang-up in which the cotton passed through a double hopper, then a Buckley, then a Crighton opener, and then across the room and up to the next floor to two horizontal machines. He declared there was enough draft created by the beaters in this line to carry the cotton on through it.

J. C. Edwards, superintendent, Martha Mills, Thomaston, Ga., declared that "we had verticals, and took them out. We used both the grids and the screen. I do not think anything of the vertical as a cleaning machine. We got out about .15 per cent, and that is hardly any cleaning. We replaced ours with horizontal cleaning machines. We have two horizontals after a Buckley." Mr. Towers re-iterated here that "anyone would be making a mistake to consider the vertical opener as a cleaning machine pure and simple."

With screens already installed in vertical openers, and recognizing the machine only as an opener and "bloomer," E. H. Rogers, agent, Fulton Bag & Cotton Mills, asked if the chairman would recommend going to the expense of replacing the screen with grid bars. Mr. Towers replied in the negative. J. C. Martin, of H. & B. American Machine Co., stated that this would depend upon the kind of cotton being run, and the amount of short fibers it was desired to remove. "But do you not want to get out all of the dirt, etc., from any cotton?" inquired Mr. Rogers.

Mr. Heymer brought up his question again, stating that, "checking up on the amount of cleaning machinery that has been placed in the cotton mills in recent years, I have been wondering if we do not consider the Crighton opener as a cleaner, and if it would not be better to have a cleaning machine ahead of it and present the cotton to it in a more open condition." Mr. Towers drew out the point that an ordinary farm bale of cotton is much easier to clean than a compressed bale, because it is softer and loftier, and applied this to the recommendation that the vertical opener be used first as an opener in order to prepare the cotton for subsequent cleaning actions.

V. J. Thompson, superintendent, Manchester Cotton Mills, reported that he has two different lines of opening equipment, one with a Buckley ahead of a vertical, and the other reversed, and that he gets the better cleaning with the vertical ahead. He is on 7/8 to 15/16-inch Middling cotton. He also has horizontal cleaners in his opener lines, and said he had trouble with curling until he took out one of the two horizontals which he had in tandem. He reported no immediate damage to the staple as a result of the curling; however, he said later that this curling of the cotton, or rolling it up, put it in a condition so that it was damaged in subsequent processes. "I don't see how you can curl staple unless you hold one end of it," he said, and this rolling up in the opener did cause a damaging effect later on.

"We have a No. 12 machine, then two horizontal cleaners, and then the cotton goes to a Buckley section and a carding beater on one-process pickers," said J. C. Edwards. "We have had some badly curled cotton, but we corrected it. The whole secret is to keep the space from the beater point to the screen, and the draft, correct. If you let the space from the beater point to the screen get too big, you will curl the cotton; it will stay in there and roll it up. I do not believe the vertical or horizontal cleaner will injure the cotton, but it puts it in a condition to be damaged later on."

"We had a little experience with curling," said George S. Elliott. "We have eight feeders feeding onto an endless belt, two horizontal machines. We

found that the curling was due to the fact that small pieces of cotton were being thrown out away from the mass, and these pieces were rolling between the ends of the beater and the perforated screen. We increased this distance. I also concluded that the serrated bar on the side of some horizontal cleaners was breaking the cotton loose from the mass and causing it to roll, and we bent that down and changed the situation considerably. I have also found, in answer to Mr. Rogers about changing the screens, that the more perforated screen you pass cotton over the greater tendency you have to 'ball it up' as we call it, whereas the grid bars have more of a tendency to clean it, but I think there is a limit on both."

Mr. Towers related another experience, wherein curling was cured by the drafts and speeds being adjusted and attuned to one another, presenting a lay-out containing three cleaning units—a vertical, and two horizontals—in which the cotton was cleaned without curling, by virtue of maintaining the proper speeds and drafts.

Experiences with One-Process Picking.

The next question presented by the chairman asked for experiences with one-process picking. This was defined to mean the newer types of picking in which there is no intermediate calendering of the cotton into laps, the one unit producing the lap for the cards, whether with one, two or three beaters. The question called for results as to the number of rejected laps, freedom from motes and foreign matter, and uniformity, as compared with the system previously used; and also asked as to the disposition made of laps not weighing within the established variation limits. J. C. Edwards, of Martha Mill, was first called upon.

"We installed a 'heavy-duty' one-process system," replied Mr. Edwards. "This contains a Buckley section, and a carding beater in the finisher section. Before we applied this one-process system, we had, on our two-process system, what we called an outside tolerance on our lap weights. We allowed ½ pound total variation from standard either way, and then beyond that we had a pound total variation. The light and heavy laps were marked as such, and carried to the card room and run as light and heavy and on the drawing the light and heavy cans were run together. Since putting in the one-process we have eliminated the one-pound tolerance, and now run with a half-pound tolerance. Taking it over the whole week, we run about 4 per cent rejects, but we get most of those on Monday morning when we are starting up. The rejected laps go back to the openers and are brought all the way through again."

"Do you find your laps as free from motes?" asked Mr. Towers.

"That depends altogether on the settings and drafts," replied Mr. Edwards. "We can take out more or less as we desire. We can take out just as much as we did."

Mr. Towers, in an effort to determine whether the new one-process would do as efficient work as the former two- or three-process system, with the old system of preparatory opening, asked Mr. Edwards a question along this line, and Mr. Edwards declared that in his opinion the one-process would give just as good results from the same opening equipment. Mr. Elliott expressed the opinion that the success of the one-process is largely dependent upon better opening.

J. T. Gladney, overseer of carding, Dixie Cotton Mills, declared that they have a one-process running alongside of older two-process, both being fed the same kind of cotton from the same opening equipment, consisting of two verticals and a horizontal cleaner in tandem. He said on the one-process system they get 25 per cent more motes out, this machine running at a faster production speed, with less blows per inch. The lap variation is about the same, and the "set-backs" run about four per cent on the one-process against eight per cent on the old line. The yard-by-yard variation is about the same.

D. D. TOWERS, superintendent of the Anchor Duck Mills, Rome, Ga., who led the carding discussion . . . .

A. E. Massey brought up the point that the term "one-process" is vague, stating that he knows of a picker room which contains only one beater, while others have two, and some three. The chairman here made the clarification previously reported; that "one-process" referred to the newer developments in which all of the picking was done with no intermediate lapping.

"We were fortunate in being able to have one of the single-beater one-process machines," said Mr. Edwards. "We ran it alongside of the 'heavy-duty' equipment which we adopted. Of course the single-beater machine that we tried out gave us just as good cleaning, but we increased the capacity of the pickers by adding a Buckley section, and where we are using 16 machines we would have had to use 24 of the single-beater type."

More Uniform Laps—Less Set-backs.

Responding to a question from the chairman concerning the Fulton Bag's one-process pickers, Mr. Rogers reported that the laps "are some evener. They are more uniform in the total weight and more uniform yard for yard so far as we are able to weigh them. The rejects are very much reduced. We carry the rejects back to the opening process and run them through again."

Chairman Towers here brought up the question as to whether this "double-working" of the stock, in running laps back through the opening and picking, had a tendency to damage the staple. Mr. Rogers

had run no recent test on this, but said that in the past he had known of a case where re-worked underclearer and roving waste had been mixed 50 per cent with cotton, and that there was a considerable drop in the breaking strength." Mr. Towers suggested that this test be made as a matter of information, and asked if anyone had taken the time to take four finisher laps and make a new lap out of them, and run the test through to the yarn. "I have," said Mr. Elliott, "and the breaking strength fell all to pieces, and the uniformity of the yarn was very irregular, and it did not draft as well."

Regarding rejected laps, Mr. Brook said, "we have very few on the one-process, or on the old two-process system. We think we do considerably more cleaning on the one process. We have two Buckley cleaning sections with 80 cleaning bars on each, whereas we had only 16 bars on the old system. We started off with a two-blade beater in the finisher section of the one-process, but it made too rough a lap, and we put in a carding beater, and it made a smoother lap. We have very few laps to set back." Mr. Edwards confirmed Mr. Brook's experience as to the decided advantage of the Kirschner or carding beater in the finisher section compared to the blade beater.

"Straining Gnats—Swallowing Camels."

Referring to the matter of allowing one-half pound variation each way from standard on picker lap weights, Chairman Towers expressed the opinion that "in doing this we are straining at gnats, and swallowing camels. The reason is that the best variation claimed for yard-for-yard weighings from heaviest to lightest, is ¾-ounce, and that is twice the percentage of variation that one-pound tolerance is on an average total lap. On a 14-ounce lap, ¾-ounce is 5.35 per cent variation from standard, and on a 40-pound lap, one-half pound each way is 1.25 per cent each way." Mr. Massey added that the length in the lap also would vary considerably.

The discussion on this question was concluded with a statement from Mr. Gladney that, in connection with their one-process picker, they had found their evenness improved considerably through the use of an automatic doffing attachment, which allowed the picker to operate continuously with the screens stopping.

Preventing Variation in Picker Lap Length.

"What have you done to eliminate variation in the length of picker laps?" was the next question presented by Mr. Towers, who explained that this referred to two-, three- or single-process systems.

Harry H. Purvis, of Chicopee Mfg. Corp., was first called upon. He replied that while they experience little of this trouble, he had found that the density of the lap, causing it to have too much weight, would result in a stretched lap. He said they roll out laps on the floor to measure them about once a week, and find a small variation. D. D. Quillian, superintendent, Athens Mfg. Co., reported a great deal of difference in the variation of the length of laps from different pickers, and from the same picker. He said it is largely a matter of difference in friction on the lap; that he had run a sheet of paper through with the lap, experimentally, which prevented stretching from friction.

As to the cure of length variation, A. E. Massey recommended keeping the leathers on the frictions clean and dry. Mr. Towers pointed out the possible effect of a gummed-up set of rolls in the logger-head. Mr. Quillian said he felt this would have less effect than the weight of the pins themselves.

"Has anybody put a more mechanical set of rolls in the logger-head?" asked the chairman.

"Ball bearings on both the rolls and logger-head will help," said Mr. Massey.

"That is just the point I was after," said Mr. Towers. "I think they are an absolute necessity. If you haven't tried them, and are bothered with irregular laps, you should try them. They will make you rolls perfectly free so they will turn all of the time." Mr. Brook said that atmospheric conditions have an effect on lap length, and W. P. Roseberry, overseer of carding, Scottdale Mills, said if the lap is fluffy it is likely to stretch; and also that keeping the friction leathers clean is important. Frank H. Cooper, of Fulton Bag, said that on the old type of knock-off motion, the picker will not always knock-off at the same place, and this will cause length variation, of course. Mr. Thompson pointed out that the train of gears on the knock-off motion can cause the trouble if they are worn or out of mesh or skipping for any reason.

Preventing Split Laps.

The chairman next asked for discussion on the causes and prevention of split laps. A. E. Massey was called upon, replying that "assuming that the mix is as it should be, not having the draft on the screens balanced will cause them." The chairman asked which screen should take the most, and Mr. Massey said the bottom one. However, V. J. Thompson said he closes up the bottom screen almost completely and throws all of the air through the top screen; that at some places he had put strips of leather right over the screen. Mr. Duckett of Fulton Bag said they formerly let more air on the bottom screen but that their new pickers are equipped with no damper on the top. J. T. Gladney said he had found that if a lap is "packed" splitting will result, and that he had put blocks about ¾-inch wide on each side behind the screens, making the lap 1½ inch narrower; that this produced no harmful effect on the card, insofar as the selvages were concerned.

Mr. Thompson and the chairman both referred to the satisfactory use of the fingers on the inside of the pickers as aids in preventing splitting.

"Has anybody tried running roving into the lap from a creel, to make a sort of layer for the lap?" asked the chairman. Mr. Rogers said he had seen it tried, and that invariably it produced streaks. Mr. Towers said that in a mill running on 50 per cent re-worked ("and I *mean* re-worked") stock, it had been put through the pickers without splitting with nothing except the fingers, the roving, and getting the proper proportion of draft on the screens to pre-

V-Belt Drive on Doffer Comb.

There was next a brief discussion as to using V-belt drives on the doffer comb on the card. Mr. Maddox of Fulton Bag reported that he had been using about a half a dozen on this application since last June, and was very well pleased. He said one of the best features is that this belt can be run so much slacker. Mr. Towers explained that he had been unable as yet to get the belt for use on the comb on one make of card, due to the fact that none of the manufacturers was making one of the right mold and length, but that on other cards he had found them very satisfactory. Mr. Edwards said that "we have something over 400 cards equipped with the V-belt drive from the cylinder drive to the compound, and have been running them night and day for twelve months with satisfaction; though we have others that have been running for two years with no wear." He explained that the biggest problem is in finding a belt with the proper mold and length for this application, and that one of the manufacturers was working this out for them. D. D. Quillian reported he has been using some of the V-belt on the doffer comb for about a year, with no signs of wear. He likes them, saying they stay a lot cleaner.

Experiences with Straight-Wire Card Clothing.

At the March, 1930, meeting, members had reported as to experience with straight wire and metallic card clothing, in place of the regular knee-wire, and at this point Chairman Towers asked, "Having had another year's experience, what is your opinion *now* as to the practicability and preference of straight wire card clothing or metallic clothing, compared with regular wire?"

The first man reporting as to straight wire clothing, was L. R. Colbert, overseer of carding, The Trion Co., who said he has had eighteen sets about a year and doesn't like it very much. He said "you can't get as clean work." Asked as to how often it is stripped, he said they tried stripping at different periods, every four weeks, every two weeks, and once a week.

"And even at once a week you have difficulty in getting as clean work?" asked the chairman.

"The web doesn't look as good," said Mr. Colbert. He answered further questions by saying the flat strips from the straight wire cards are pretty dirty, that the strips seem to be inferior, and that he had made no test as to the weight of the sliver.

Another member reported that he finds the weight of the sliver about the same, with the straight wire, with a lot more fly. He said he prefers the original clothing; that everytime the straight wire gets choked up it is harder to straighten up. He uses the same card settings on the straight wire that he uses on the regular wire, and strips twice a week with a roller. On the regular-wire cards he has a vacuum stripper. He reported no difference in the cleanliness of the work, but said if he were equipping further cards he would prefer the original wire. Mr. Purvis reported they have straight wire on one doffer only and have not tried it on the cylinders.

"We have had quite an extensive experience with straight wire," said J. C. Edwards, of Martha Mill. "We experimented with 22 cards for about 18 months before we put it in to any appreciable extent. Frankly, you can take one card and make it do anything; you can take one spinning frame and almost make it talk. To find out what there is in anything you must go into it on an extensive scale. We now have 378 cards clothed with straight wire, and while I cannot say that if I had a mill and it was going to take me ten years to recloth the cards that I would use the straight wire, because then we couldn't get the benefit of it. If I was building a new mill I would use the straight wire."

"What are the benefits?" asked Mr. Towers.

"On our regular wire cards we are stripping every three hours," said Mr. Edwards. "On the straight wire we strip every 24 hours. We have run our straight wire cards for a year or more, stripping every 144 hours of operation, and did not see any bad effects in our breaking strength or cleanliness, but the reason we are now stripping every 24 hours is in order to cut our strips down.

"The straight wire will make more top strips, and the manufacturers have recently come out confirming an experiment we made, recommending that you cut your flat speed in half in putting on straight wire.

"As to straightening out the wire, my experience has been that the straight wire is no more difficult to straighten than the regular wire. Several times in passing through the mill I have noticed cards choked up, and have taken the occasion to straighten the wire myself, and I can tell no difference. If there is any difference I believe I would rather scrape up the straight wire." Mr. Wilson of Pacolet agreed with Mr. Edwards on this point.

"Can you grind the straight wire as easily?" asked Mr. Towers.

Mr. Wilson replied that he grinds one-third less on the straight wire and maintains the point satisfactorily.

"We have one cylinder equipped, and it has given us satisfactory service," reported Mr. Roseberry, of Scottdale, who said they are on a low-grade cotton for osnaburgs. He strips the straight wire twice a day, and the others three times. "We like the straight wire and I would use it if we were clothing more cards," he said.

Metallic Card Clothing.

An experience with the metallic card clothing (made on the order of licker-in wire) was reported by J. E. Batson, overseer of carding, Columbus Mfg. Co., who said they have 11 cards equipped with this clothing, "and so far our experience has been good. We have been running it two years and we have not had to grind it. We have had no choke-ups." He said they set the flats a little closer with the metallic clothing, and that they have more fly, the flat strips remaining about the same. The breaking strength of the yarn is equal to that from the regular cards, he said. This clothing takes out more

specks and leaf, and produces a cleaner web, he said. He explained that both the cylinders and doffers on these cards are equipped with the metallic clothing. They strip once a week with the burnisher roll. He further explained that the clothing is ground when it is put on, and that theirs had not been ground since. On only one of the cards have they had trouble with the clothing bucking up, he said, and this was only for five or six inches right at the side of the cylinder, and this was easily repaired before any damage was done. It takes about two days to cloth a card with this clothing, he said. The surface of the cylinder is built up, and then ground down evenly with an emery wheel.

Frank E. Heymer reported a test made on one card with straight wire and one with metallic clothing. The straight-wire card, he said, was stripped once a week, but that the strips were not merchantable; they were very low and contained more motes. The amount secured stripping the straight wire once a week was about the same as that secured in a day with three or four strippings on the regular wire. The web was very clear, and there was no difference in the breaking strength.

On the metallic clothing, Mr. Heymer continued, they got a very clear web, but the breaking strength was somewhat less. They strip the metallic clothing once a month on metallic clothing. The amount of fly is larger with the metallic clothing, and the web is clearer, but the breaking strength is off some.

Reducing the Speed of Card Flats.

"What results, good or bad, are obtained by slowing card flats, say from 3 to 1¾ inches per minute?" was next asked by the chairman.

"I had occasion to change the speed of some flats some time ago," said Mr. Massey. "We had bought some cards which had been in a New England mill on fine combed work, and the flats were running about 50 per cent above the regular flat speed. I couldn't get my percentage of strips down to what we run them here in the South, and I had to cut the speed."

R. A. Butler, technical superintendent, Martha Mill, Thomaston, said, "We slowed down our flat speeds by taking off the pulley and running direct from the shaft. We have not noticed any difference in the breaking strength, though I will say that we made some change in the cotton, also. We changed the entire mill, slowing down without any bad effect. The strips were reduced from 3.75 to 2.75. We slowed the flats down about 54 per cent in speed. We are now going back to the increased speed and notice the results for six or eight weeks for comparison. At the lower speed there is a decided decrease in the amount of good cotton in the strips."

V. J. Thompson reported cutting the flat speed on 16 cards at one time, but that he was carding 200 pounds in 10 hours so this was hardly a fair test.

"We changed ours by taking off the pulley and driving the flats from the shaft," said R. S. Steele, superintendent, LaFayette Cotton Mills. "The flats were making a revolution in 40 minutes, and we changed them to make a revolution in 90 minutes, and we got a great deal more dirt, and did not notice any difference or bad effect in the web. I think our cloth is a lot cleaner. We made no changes in the setting."

"We tried slowing flats down, but didn't keep it up," said J. B. Bailey, of Wehadkee Yarn Mills, Rock Mills, Ala. "I'd like to know where all that stuff goes. We cut our strips down one per cent, but it seems to me that it goes on into the work. The breaking strength on our test was lower, and we made a gain on the strips but lost in cleanliness." Mr. Steele said they noticed no difference in their breaking strength. Mr. Towers and Mr. Heymer replied to Mr. Bailey raising the point as to whether the reduction in the amount of flat strips was represented in good or short fibers which naturally were going "somewhere" and presumably into the yarn. Mr. Towers reported further the following test:

"We have a young man who made a test by taking six cards and making a careful weighing of the flat strips for a period of five hours, and then saving all of the sliver. Then he slowed the flats down 40 per cent and weighed the strips and set the sliver to one side. We found a difference in the proportion of 3 to 4. On the slow speed we got three-fourths as many strips from the same card as on the normal speed. Then we ran the slivers into yarn, and when we got to the spinning, 7s yarn, we made a .4 heavier average count with the sliver from the card with slower flat speed, showing that the staple we had been getting in the strips showed up in the yarn. In putting that to a breaking strength test and reducing it to a common factor, there was a slight decrease in strength. The strips were dirtier, and the web looked a little cloudy and had more neps in it."

Mr. Batson asked for experience in speeding up flats. Mr. Duckett said he once speeded up 10 cards 40 per cent and got one per cent more strips.

Straightening "Bucked" Plates.

"In trying to control card strips with stripper plate setting, and the plates give the effect of being 'bucked,' what method is used for straightening these plates?" was next asked by Mr. Towers.

Mr. Thompson answered that the trouble is in the way the plates are tightened on the cards. He said his method, when the plate seems bucked one way, is to put a thin piece of paper in by it.

"In other words," said Mr. Towers, "you shift your bearing point." He went on to emphasize Mr. Thompson's point that the difficulty is in the way in which the plates are tightened. That usually when a plate which appears "bucked" is taken out, it will be perfectly straight, but that when put in it will be bucked in the tightening. He said it is an old practice among fitters to file the bracket to a permanent fit, rather than use the piece of paper described by Mr. Thompson.

Experiences with the continuous card stripper were next asked for, and this was the last subject discussed at the morning meeting. V. J. Thompson of Manchester said "we have 16 of them, and get along with them pretty well, but the cylinders get duller. We strip the doffers on these cards once a

week, and strip the cylinders every time we grind, or about every twenty days. The web looks fairly well. The flat strips are about the same."

"We have used the continuous stripper on low-grade cotton," said Mr. Edwards, "and my experience is that it dulls the wire." He compared the continuous stripper to the more familiar fancy used on many waste cards.

The Continuous Card Stripper.

Harry Purvis said at Chicopee they have 21 continuous strippers, and that they do dull the cylinder wire. The strips, he said, are slightly heavier. They strip these cylinders when they grind. Mr. Thompson said that there was more end breakage on spinning on cotton from the cards with the continuous strippers; that he noticed no difference in the weight of the sliver from them.

George Glenn, of the Pepperell Mfg. Co., Lindale, pointed out that there is a big difference between the continuous stripper and the old style fancy roll. That the continuous stripper is built in sections, and is attached to the back of the card; that the fancy roll is on the front, and will dull the wire more. He reported an experience with continuous strippers at a previous connection, stating that they found the breaking strength to be about the same, with cleaner work, and that the flats strips were quite a bit dirtier. He said, "at first we thought the drawing would lose, but after we put on quite a number of them this was not the case. The fly is a little more, and the strips are about the same, only dirtier." He said he understood this mill, which now has about 75 cards so equipped, is to equip the remainder of their 142 cards, and that they figure a saving of about $4,000 a year on the 142 cards. He said this was figured as coming from a saving in stock, in production, and stripping labor. This mill, he said, figured a loss of four ounces of cotton at each stripping, and stripping four times a day and night made a pound of cotton per day and night per card. In addition, he said, they figured it takes three minutes to strip a card, and that this loss in production was calculated in figuring the saving. The mill is on 15/16 to 1-inch Middling cotton. He said they strip the cylinders now only at grinding time, about every 20 days.

Asked as to whether the change in the quality of the strips affected the price for which the strips were sold by the mill, and whether this were taken into account in calculating the saving, Mr. Glenn said he was under the impression that the change in the character of the strips had not affected the price secured for them by this mill.

This concluded the morning session, and the customary Dutch luncheon was served in the dining room of the school. Following this, the discussion was resumed at an afternoon session on spinning subjects, conducted by George S. Elliott.

The first question in the spinning discussion was, "Are non-oiling front and back saddles made of wood as good as the iron saddles which must be oiled? Is there any difference in the power consumed by frames equipped with the wooden saddles?"

E. H. Rogers, of Atlanta, responded to this question, saying, "Several years ago, at another plant, I had 66 frames equipped with impregnated wooden saddles. They were a very nicely gotten up arrangement, and the keeping of oil off of the rolls was very much to be desired, but we did not have a satisfactory experience with them. Our spinning would not run as well, and the friction between the roll and the saddle was enough to make the surface of the sheepskin cut off and this surface was deposited up in the top clearer weights. We never overcame that until we came back to the cast-iron saddles." Mr. Rogers added that they oiled the saddles about half as often as ordinarily, and that improved the conditions some, but did not overcome the chafing of the cot. He said they did not make any comparative power tests on the wooden saddles. This, he said, was a complete top saddle from front to back, made very similar to the ordinary saddle.

G. S. ELLIOTT, superintendent of Pacolet Mfg. Co., New Holland, Ga., who led the spinning discussion . . . . .

Experiences with Wooden Saddles.

J. C. Edwards of Thomaston stated that 30 years ago, when he was oiling in the mill, they used quite a lot of wooden saddles, almost altogether, but they had difficulty with them wearing very rapidly and clinching the roll. He said that recently, by reason of using a revolving top clearer, he installed some impregnated wooden saddles for experiment but did not find them very satisfactory after three months of trial. With a 10-pound weight on the front roll, long draft, with the stirrup he was using, he said he could not get enough body into the saddle to keep it from swaying in the back.

"We are using some wooden saddles in a small way on the back," reported Mr. Towers. "We do not find any serious objection to them. They lubricate satisfactorily by putting a drop of oil on them every two weeks. We have had a number of sides on them for over a year, and we bought 500 more last week. They take less oil, and if properly made, you will not get too much friction on the back roll. Ours do not seem to be wearing at all. These saddles are adjustable, and we can vary the load on the middle roll. We still use the plain iron saddle on the front. We do not let the wooden saddle go for more than two weeks without oiling, and then we simply put a drop of oil on with the finger."

Chairman Elliott next asked for a discussion from those who had used calfskin covering on spinning top rolls. Harry H. Purvis, of Chicopee Mfg.

Corporation, said that, "we went over to calfskin entirely about nine months ago and we have found that it is cheaper to run. It costs about twice as much to cover the rolls with calfskin, but we get over twice the life, and the work runs just as good except for the eye-brows which form on them. The calfskin seems to be a little too slick at first.

"We changed the cloth when we changed the skin, and use a better grade of cloth with the calfskin. The calfskin runs so much longer that we wanted a foundation that would last as long as the skin itself." Mr. Purvis added that he found no difference in the drafting qualities of the calf as compared to sheepskin.

Using Calfskin Rolls on Spinning.

"I am using calfskin altogether," said J. C. Bailey of Rock Mills, Ala. "We run a low-grade cotton, and on the sheepskin, we found that using a high humidity, the cots were coming loose. When we changed to the calfskin, the cost was a good deal higher, but after we got changed over, we cut the roller bill half in two. We use the best cloth we can buy on the calfskin, and we put on new cloth every time we change the skin." Mr. Purvis stated that he does this also.

Mr. Bailey continued by pointing out that when the calfskin is first put on, the yarn will show up a little weaker, but that after it runs awhile it gets back to its normal state. He said that he uses calfskin in both the carding and spinning. Asked about cork rolls, he said that he likes cork as long as it does not flake up.

D. D. Towers gave some interesting comparative figures with regard to the life of calfskin and sheepskin covering. He stated that during practically all of 1929, they were almost entirely on sheepskin, and kept an accurate record of the skin consumption. He said they were using a high grade sheepskin with an ordinary gray cloth. "In the latter part of that year," he continued, "we started changing over to calfskin with a high grade all-wool cloth, and kept the same kind of record. During 1919, on the sheepskin, we used five rolls per side per week, or an average of .88 rolls per 1,000 spindle hours. On the calfskin, during the following year, we averaged .66 roll per 1,000 spindle hours, or 3.4 rolls per side per week. Even taking into consideration the fact that the calfskin and all-wool cloth cost more, we actually saved in dollars and cents.

Difficulty with "Eye-brows."

"But, we ran into the same thing these other men have reported. I have never seen a calfskin that will not form an eye-brow. About one roll coverer in every 40 knows how to make a proper lap on the skin. One of these days somebody is going to bring out a sheepskin that will not lick up under high humidities, which will have all of the advantages of the calf."

"On long draft spinning," said A. E. Massey, "the calfskin is practically a necessity. There is no comparison. We had 50,000 spindles on long draft and we couldn't get enough sheepskins to hold up; on account of the added weight and added work, the sheepskin would just not stay there."

Frank E. Heymer reported that he is at present making an experiment with various roller coverings. He stated that since January 19th he has had one side of a frame on sheepskin and one on calfskin, and that since that time he has taken out one roll on the calfskin side, and that this was due to the fault of the spinner, whereas he has taken out 43 rolls of the sheepskin. This is on 7s waste yarn. He said that he gets better running work on the calfskin, and that he is inclined to believe it is more satisfactory for coarse yarns. On his test, the calfskin is being used only in the front rolls. He stated that he has had no trouble with the calfskin insofar as getting good covering is concerned.

The charman pointed out that he had heard of a mill which was spinning up to 140s with calfskin. He said at his own plant he has used calfskin quite extensively and asked the overseer of spinning, Mr. Peterson, to report on it.

Mr. Peterson said they had been using calfskin for about a couple of years, and liked them very much. He said, "We used to have quite a number of fluted rolls on the sheepskin, but after adopting the calfskin, we do not average over two or three fluted rolls per week out of 60,000 spindles. Last week we didn't have a one. It cut our roller bill about half in two, as we used about half as many rolls, though the cost of course is more. As to the breaking strength of the yarn, we cannot tell any difference. We ran some end breakage tests, and there was scarcely any difference. Possibly one time we might run a week's test on a few sides and compare it with the sheepskin, and it would be pretty nearly even; possibly a little in favor of the calf."

"It might be interesting to call attention to one particular thing," added Mr. Elliott. "We had a calfskin that had run for around two years, and had worn so thin that it was almost like tissue. We made a test on it to compare it with a new roll, and we were surprised at the remarkble closeness of the two. The worn skin was not loose on the roll, and it did not have any tendency to pucker. As to the eye-brows, we find that these will show up on any new roll, and as to whether it is worse on the calfskin I cannot say. The calfskin does not seem to have the frictional contact to pull it under the clearer. There is not such a difference in the cost when you consider the number of times the rolls have to be clothed."

Spinning Running Bad Immediately After Oiling.

Mr. Edwards asked J. F. Wharton to discuss his experience with calfskin. Mr. Wharton said he tried 33 frames making 23s yarn out of 1¼-inch cotton, and that they had 50 per cent more lick-ups on the calfskin. This was on long draft spinning, with revolving top clearer, using a 22-ounce all-wool felt cloth. Mr. Wharton said to convince himself of the difference, he took out two sides, on the south side of the mill, and put in sheepskin, and that this ran much better.

"Why does a spinning frame generally run bad

just after the spindles are oiled? How do you eliminate this trouble? How often should spindles be oiled, and with what kind of oil?" This was the next question submitted by the chairman.

A. E. Massey, when called upon, stated that if the spindles are properly oiled, there should be no difficulty of this kind. John Hampton, overseer of spinning, Fairfax Mills, said that he had noticed that his ends down were considerably higher, on band-driven frames, immediately after oiling, and that he had found it to be helpful to oil half of his spindles one week, and the other half the alternate week, oiling on Saturday afternoons, after the frames were shut down, and allowing the oil time over the week-end to seep down into the base so that it would not come out.

The chairman read here the report submitted by Mr. Keighley of Berryton, stating that his spinning used to run bad after oiling, and in trying to stop it, they tried the practice of taking down a frame of bases and cleaning them out, but that they got their best results by changing type of oil used. He said that they oiled spindles every two weeks, each oiler oiling one-half the spindles on his section each week, and that, "we have found that by having the oilers oil only half their spindles at a time, the job does not become old to them as they are not so apt to skip them."

Report from Fulton Bag.

Frank H. Cooper of Fulton Bag & Cotton Mills, reported a rather thorough test in connection with this subject. He said he had found that for a short while after their spindles are oiled, they will have as much as 25 per cent more ends down, and that he had found that the biggest trouble was in the oil being thrown out of the spindles onto the ring. He said he took 24 spindles and put them under observation, taking the spindle speed with a velometer before and after oiling, and that he also took the temperature of the spindles or of the oil in the spindle. He stated that if it were possible to measure the traveler pull, more accurate conclusions could be drawn.

In making the tests, Mr. Cooper said, he held a piece of white paper up in front of the spindle immediately after oiling, and was surprised to notice that in a short while the spindle had slung out a lot of oil which caused specks on the paper and also on the sleeve of his shirt. He then said, "it is reasonable to assume that some of this oil coming from the whorl would get onto the ring and make the traveler run 50 per cent lighter, as we noticed that the balloon would come out to the separator and hug it right down to the spindle." As to the spindle speeds, he said he found that the spindles ran 25 turns slower, on a spindle speed of 9,300 r.p.m., immediately after oiling. He also said that he had tried an experiment of using a heavier oil in the spindles, but that this ran much worse than with a lighter oil.

Mr. Bailey said that he also had found that the oil from the spindle would get on the band and make it slip on the whorl and cause the spindle to slow down. He said that he tries in oiling not to run the reservoir over.

"In oiling spindles," said Mr. Hampton, "the average fellow does not take enough pains with it. You know, the oil must make a turn right at the top of the base, and the average oiler will run it over. We have found that by oiling on Saturday afternoon, after the frames are stopped, and giving it time to get down into the base, we have eliminated much of this trouble."

Another member stated that his system is to divide the oiling job up between two oilers, and that he stopped the frames when oiling. He pointed out that the number of the yarn has a lot to do with the oiling, and that his system is to so oil that the oil will have time to settle down in the base and not be thrown out.

With regard to oiling, this man brought out that a bobbin that is not true, or a spindle blade that is not true, will cause vibration which will siphon the oil out of the base, and it will get on the traveler and cause the traveler to be too light to hold down the balloon of the yarn. He said that he oils only a few frames each day, and that naturally just a few frames in a room will not show up so bad. He also explained that some oils release a vapor which will have the same lubricating effect upon the ring and traveler as the oil itself.

When called upon, Mr. Heymer said he had had no trouble along this line, but inquired as to the effect of various viscosities of oil used on spinning frames. He said that about six months ago he did make a change for the better in his spindle oil, but that this was not caused on account of the work running bad, but because the spindles seemed to be getting hotter than they should. Mr. Heymer said that he had not taken the temperature of the spindles but had judged them by the feel.

Effect of Gummed-Up Bolsters.

Another member indicated that if the bolster gets gummy and sticky, this will cause the oil not to settle in the base, and that he has found it a good practice to mix a little kerosene with the spindle oil occasionally for the purpose of cutting out this sediment. He indicated that he oils his spindles while the frames are running.

Mr. Jordan of Swift Manufacturing Co., was called upon, and said that he had had some trouble with the spindle shank siphoning the oil out before it had time to settle, and throwing it on to the ring rail and traveler ring and causing more end breakage. He said he thinks it is best to oil the spindles while the frame is stopped, and allow the oil time to settle.

"About a year ago I became curious to know just how much oil there was in a base," said Mr. Cooper, "and I made some investigations along this line, and it would surprise you to know how little oil there is in there when it is full, or apparently full, because there is very little space in there. We oil our spindles with a spring bottom cup, and oil them every two weeks. We tried to find a hot space in order to conduct some tests on the next question, and it took me three weeks to find one, and when I did find

it the temperature was only 106 degrees."

Mr. Massey suggested that some of the members make tests using different viscosities of oil at different spindle speeds. He suggested that some revealing facts might be secured by doing this, pointing out that the faster a spindle runs, the lighter the oil that should be used."

D. D. Towers pointed out that many mills have a large number of spindles which have become sprung or bent in doffing, and that unless these blades are kept true, they will siphon the oil out of the base. These spindles, he said, are built to allow for some motion at the bottom of the spindle, and if they get bent even a few thousandths of an inch, they will pump the oil right out.

Mr. Peterson was the last man called upon to discuss this question, and he said that, "We have not had any noticeable amount of trouble about this, but we are on coarse numbers, from 6s to 25s. I think the cause of the trouble has been explained in careless oiling and running the base over with oil. I would prefer oiling the bases when the spindles are not in operation."

Causes of Spindles Heating Excessively.

The chairman next read the following extensive question:

"Several men have reported that frequently in making strength tests on yarn (from band-driven frames) the bobbins from some one certain spindle on a frame will break weaker on some part of the bobbin, even on tests conducted over a period of several days. The fact that the same spindle produces the yarn from different days' roving, they say, would eliminate the probability of uneven roving causing this. The fact that the weak places show up in spots anywhere throughout the bobbin would eliminate the probability of the weights on the rolls causing it. Then, the trouble will disappear on any given spindle, to return again. Also, it is brought out, the spindle bearing seems to heat up and cool off without being oiled or having any adjustment. It is during the time that the spindle is hot apparently, that it makes the weak yarn.

"In making tests, determine the temperature of your spindles so that we may compare. This may be done by removing the band, raising the bolster, and placing a thermometer against the spindle. We would like to know what temperature you find on a large number of spindles. Give also the wet and dry bulb reading in the room at the time."

As previously mentioned, Mr. Cooper stated that he had made an effort to find such a spindle running hot on a frame, and that he had located one which showed a temperature of 106 degrees, in a room temperature of 85 degrees, whereas the other spindles on the same frame ranged between 98 and 101 degrees temperature. He said that in this particular case, the trouble was caused by a bobbin being out of balance, due to a soft spot in the wood on one side of the bobbin. He said that this spindle cooled down quickly when he took this bobbin off and put another one on from a nearby spindle.

Mr. Elliott said that they had found two or three bobbins which seemed to be unusually warm, and that this had been responsible for the question, but that he did not think at the time as to the effect of the bobbins being out of balance. He said that he finally arrived at the idea that the traveler was getting hot and causing the trouble. He said the temperature of these spindles ran around 110 and 111 degrees, whereas the others were running at about 96 and 97 degrees.

Mr. Cooper reported that in making strength tests of the yarn from the spindle in question, he was unable to determine anything. Mr. Elliott said that "there is something that takes place at times to cause the spindles to become warm and then cool off, and I was anxious to know whether, when the spindle got hot, it was slipping and causing slack twist to be inserted." He pointed out that it was difficult to take a twist count of the yarn after it had been broken to determine the variation in strength.

Mr. Towers brought out that on twisted yarn, the difference in twist is easily discernible, and that it stands to reason that the same thing would apply on spinning frames; that the spindle speed would be reduced by the heat and vibration.

R. A. Butler said that they had used a stroboscope in testing the speed of spindles, particularly in the twisting room, to determine the causes of ply breakages. He said that on forming twisters he had found considerable variation in the spindle speeds, and that bent spindles, etc., could of course cause this. "I have had reports from other mills showing that the variation in speed on forming twisters varied as much as 500 turns, but we have not found any over 200 turns. We have ball bearing spindles and the new type of idler," he explained.

Best Type of Pitman Roll.

The final question discussed asked for experiences as to the best type of pitman roll to use on a spinning frame to keep it revolving. Mr. Hampton reported that he has used for 10 years a type of roll with an arbor in it which worked in oil, and that he has not had a stuck pitman roll in 10 years, nor has he replaced one. Some of the men seemed to take exception to this statement, and Mr. Hampton pointed out that he did not mean that he had not cleaned his rolls in 10 years, as he does this every three months. He meant that he had not had to take one out, because of a flat side, in 10 years and offered to demonstrate this to any visitor who would come to his plant.

Mr. Elliott pointed out that the main thing in connection with pitman rollers seemed to be to keep them properly cleaned so that they would revolve continuously and not get stuck. Mr. Massey pointed out that increasing the diameter of the roll would help some.

As to the type of roll which revolves in oil, someone asked if this would not have a tendency to attract less to the roll, and Mr. Peterson explained that in his case the roll was located in the head and that he experienced no difficulty along this line. This concluded the discussion, and the meeting was adjourned. The next meeting of the organization will be held in September of 1931, and slashing and weaving will be discussed.

CURRENT TOPICS

Program for Night Work Elimination for Women and Minors Goes "Over the Top"

UNDER date of March 2nd, 1931, the following announcement regarding the success of the movement for the elimination of night work for women and minors in cotton mills, was received from The Cotton-Textile Institute, Inc. It was received too late for inclusion in the March issue, and is therefore being reproduced here.

New York, N. Y., March 2nd, 1931.—An overwhelming majority or 83 per cent of the cotton textile industry of the United States, will conform to the recommendation submitted by the Cotton-Textile Institute to the cotton mills last October that night employment of women and minors be discontinued. This majority represents over 26,000,000 spindles including 79 per cent of the spindleage in night running mills.

In reporting today the final results of the five months' educational effort concerning this recommendation, Walker D. Hines, Chairman of the Board, and George A. Sloan, President, of the Cotton-Textile Institute, stated:

> "We announce the necessary conformity to the elimination of night work for women and minors in cotton mills and therefore, that the plan for such elimination becomes effective. The industry is to be heartily congratulated on the conclusive support it has given to this great reform."

In various well-defined groups it has been understood that the group percentages would also be taken into consideration. The extent of conformity is not less than 75 per cent for such groups and for the night running mills therein and in most instances this minimum percentage has been largely exceeded.

The question of this reform has been agitated for years within the industry but received its greatest impetus within the last year or two. In the fall of 1928 an effort was made to amend the by-laws of The Cotton-Textile Institute by removing the restriction on its taking any part in legislative or political matters so that it could take the initiative in the effort to accomplish this reform through legislation. But the membership preferred to retain the prohibition on the Institute's taking any part respecting legislative matters. In the early part of 1930, however, the plan for the Institute to propose voluntary action took definite shape following a conference with Government officials at Washington. The first outcome of this conference was the suggestion of leading mill executives to the industry to establish greater uniformity in running time for labor and machinery and to make the night shift shorter than the day shift and very important progress was made in securing these results.

Last summer there developed an increased conviction that night employment of women and minors ought to be entirely eliminated, and this paved the way for the present development.

The Institute's recommendation provided for the initiation of the movement upon obtaining the support of 75 per cent of the spindles, including a corresponding percentage of the night runners. Thus it will be seen that the results announced today are well "over the top" at the outset.

Talk of the Month

BEFORE the depression cotton had come into the public gaze, because the industry had begun to realize and to capitalize the potentialities of this inestimable fiber in its style appeal. Before the end of the depression the industry had come differently into the public gaze and there it remains because of unique conditions. These are both the policy of regulated output the past year, through which cotton manufacture now is in the vanguard of industries emerging from general depression, and the unprecedented action of nearly a complete industry pledging itself voluntarily to adopt a revolutionary schedule of operations.

Cotton in the Public Gaze.

Herein we may not find anything particularly significant for the industry; that is, there may not be any profit from the mere fact that business interests outside the industry, such as bankers and other individual investors, are talking new cognizance of its activities. But that the latest move of cotton manufacturers is recognized to be "a remarkable industrial achievement," as one paper characterizes it, will react favorably upon the industry and confirm those behind the action in the soundness of their program.

PROVIDED the elimination of night work for women and minors proceeds, and succeeds in its objectives, it will have a two-fold benefit in stabilizing output and prices. At least it will automatically bring production more in line with consumption and place sellers of cotton goods in a firmer position toward buyers. In fact the immediate response after March 1 to the announcement of the Cotton-Textile Institute was an advance in the gray goods and signs of increased firmness in other fabrics.

Two-Fold Benefit from Program.

This new schedule, if rigidly maintained, presumably frees the industry of the need to make periodic agreements for curtailment based upon mixed schedules among various mills. It has another distinct advantage, contingent also upon holding to the scheme. Much talk has been made of possible legislation for the sort of regulation involved. Even the Institute, as cited by President Sloan in the recent

announcement, had a proposition for amendment of the by-laws, removing the restrictions on its taking part in legislative or political matters so that it could take the initiative in the effort to accomplish this reform through legislation.

General Trend and Goods Buying.

THE PUBLICATION, Standard Facts and Forecasts, pointed recently a lesson of faith in progress away from depression, in spite of temporary setbacks, although referring directly to stocks. As cotton already has experienced a strong advance and then hesitation, there will be courage in the statement that "at the very time the market was taking new fright in 1921, following a year's decline, fundamentals were growing more and more constructive for the future" and that "most of the infirmities now coming to the surface are the customary aftermath of a depression cycle—not the beginning."

The statement regarding stocks has application to the cotton goods situation and it should serve as a reminder that the industry hardly can look for uninterrupted improvement of demand with consequent steady ordering.

In the first place, the initial rush of buying following depression is a movement of distributors to replenish stocks. Then there must come a period of measuring the new consumer demand, under way or expected. If there were a way of securing prompt and continual statistics of the over-the-counter movement, presumably the distributors could keep right on, but they have new goods and new prices facing an uncertain purchasing power and will-to-buy among consumers. The mills also must wait for broadening of demand in goods for industry. Thus manufacturers are constrained to operate for the future with continued caution, although not in doubt of the ultimate establishment of selling on a steadier, wider basis.

Then, too, the seriousness of the surplus in cotton remains a primary factor. Not only does it affect the cotton industry, but it is typical of the unsatisfactory situation in agriculture as a whole. An important part of the buying element of the country is in the agricultural districts. The interdependence of one economic section and all others was never more strikingly exemplified than in the international demoralization in which happily there are signs of amelioration. Industry will tend through sale of finished goods to remedy the worst of the situation in raw materials, but it cannot reach the ultimate stage except as agriculture also recovers.

Stronger Market Is Logical.

EVEN THOUGH the trade the first two months of the year was perhaps only "feeling out" the new conditions, the sound operation of mills is bound to become steadily more and more a warning to buyers that it will be hazardous to bank on the extremely close purchasing policy of the period since the war. They will be forced to realize, indeed probably have to some extent already, that to adjusted operation of the capacity remaining has been added the elimination of a great volume of spindleage in recent years, making more reasonable forward covering of requirements essential. Herein is a double force for stability: the steadier turn-over of goods and firmer prices should issue therefrom. Only careful mill operating is needed.

While the situation has not progressed evenly, because the heavier goods have awaited the impetus of improving conditions in demand for cottons for industrial uses, the international political and economic developments early in March promoted very encouraging despatches, especially from abroad. As one of the chief causes of depression was the over-expansion of commodity production, much naturally depends upon the course of raw materials. The fact that industrial commodities at least have lost their dominating bearish position, because of the exhausted condition of stocks of manufactured products and growing replenishment demand, is a favorable sign. A look back at the March record should afford fairly conclusive evidence of the rate of progress toward normal in cotton and other industrial lines.

Until larger consumption has made further advance, however, raw cotton and a large number of commodities will remain in the position of over-supply. The lifting power upon values of better buying for converted raw materials, while it has become evident, must be persistent and even then the process presumably will be very gradual. In fact the course of raw cotton since the first strong rise from the extreme low of mid-December has demonstrated that an unbroken rise was not to be expected.

Advocates of drastic curtailment of the cotton crop in the South offers this as a prompt solution of the problem of raw material. Yet it will be recalled from the history of this century that the growth of foreign competition in this staple has arisen from fears of dependence on the American crop in times of short yield and most recently of deterioration in grade. Some factors point to the country's loss in export trade, the unavoidable deprivation of employment for southern workers and the further stimulation of foreign-cotton growth through heavy curtailment. Intensive methods for high yield per acre and better quality, at consequent low cost, to hold the supremacy of the American crop in the world's cotton industry, cannot be overlooked.

Price Standard vs. Production.

MASS PRODUCTION for itself alone has shown itself to be a boomerang. That is a lesson which industry at large has had brought forcibly before it. On the threshold of a new period of advance, it will probably remain in the consciousness of producers, but it is time to establish a settled policy which will hold steadily. A policy of profit selling instead of doubtful volume selling will, in the opinion of Charles F. Abbot, executive director of the American Institute of Steel Construction, accomplish the greatest period of industrial development in all history during the next five or ten years.

This policy is not broached by Mr. Abbot as something new. In fact he records that it was put before industrial and trade conventions, even for-

mally adopted in frequent instances, during the last period of expansion. The vogue for great production, if such it may be called, outran caution and profit selling was sidetracked by irrational striving supremacy in output. The results of inflated inventories are cut-rate selling which intimidates rather than encourages buying. In its re-adjusted state, the cotton industry should secure its proportionate advantage from a general era of prosperity, but only as it adheres to a policy of expansion consistent with growth of demand.

Comparative Effects of Automatic Spooler and High Speed Warper on Weaving Efficiency

THE BARBER-COLMAN COMPANY, of Rockford, Illinois, have recently released the results of a very interesting test comparing the relative influence of the automatic spooler and high speed warper in improvement of weaving obtained by their system of spooling and warping. Added weight is given to the thoroughness of the test by the fact that it covers 42,026 loom days, the tests being made in nine weave rooms.

The purpose of the test, the company explains, was to determine, first, what improvements in the weave room could be expected from the use of the Barber-Colman automatic spooler and high-speed warper, and, second, how much of this improvement could be credited to the high speed warper and how much to the automatic spooler . The results of this test are now being published because "so much has been claimed for the high speed warping that a great many people have become confused and have been led to believe that the improvement in weaving obtained by the use of the Barber-Colman system of spooling and warping is due solely to the superior quality of work done by the warper."

Explanation of Test.

In explaining the test, the company continues, "Since the first high speed warper was installed by the Barber-Colman Company at the Pacific Mills in Dover, New Hampshire, in 1917, numerous loom tests have been conducted in various mills on different styles of cloths in order to determine as far as possible the value of the Barber-Colman spooling and warping system to the weave room, and to determine if the running of yarn at high speed would be detrimental to the quality of warps produced. It was definitely proven by these tests that there was no impairment in the quality of the warps made on high speed warpers, but on the contrary there was a slight, but only a slight, improvement in quality.

"Nine of these tests have been run since the introduction of the high speed warper, covering a total of 42,026 loom days averaging 40 looms, 20 on each side, over a period of 189 weeks, or 3 years, 8 months, 5½ days. An equal number of looms on each side of the test was supplied with warps wound upon old style spoolers and warps and with warps wound on the Barber-Colman automatic spooler and warper, every effort being made to keep the test as parallel as possible.

"We doubt if anyone else has ever conducted such thorough loom tests for this purpose over so long a period of time, and we believe the information obtained to be accurate and worthy of careful consideration. This information is summarized in the following table:

RECORD OF LOOM STOPS DUE TO WARP FAULTS.

	No.		Stops on old style warps	Stops on Barber-Colman warps	% of reduction to total (126985)
Automatic Spooler	1	Lint on yarn	98515	71949	20.92
	2	Spun in			
	3	Wild yarn			
	4	Imperfect knots			
	5	Breaks caused by good knots			
	6	Spooler kinks			
Warper	7	Slack threads	28470	26219	1.77
	8	Weak yarn			
	9	Miscellaneous			
		Totals	126985	98168	22.69

"Items 1, 2, and 3 relate to the cleaning of the yarn. An exceedingly efficient yarn clearer is provided on the automatic spooler to remove slugs and gouts and wild yarn and also special means for blowing the lint from the machine itself to prevent bunches of lint from becoming attached to the yarn. Therefore, any improvement in these items must be credited to the spooler.

"Items 4, 5, and 6 relate to defects in the warp caused by imperfect knots, breaks caused by a perfect knot chafing the adjacent thread until it breaks, and the presence of kinks near the knots. As the spooler is entirely automatic in this respect it naturally ties a higher per cent of perfect knots, and as it is equipped with a weaver's knotter fewer breaks should be caused by good knots. A special slack take-up device is provided to keep the kinks out of the yarn at the time of tying. Therefore, any improvement in these items must be credited to the spooler.

"Items 7 and 8 are the only items that are affected by the tension of the yarn. Slack threads in the loom beam can only be caused by lack of uniformity of tension during the warping. Weak threads may be affected by the tension either at the spooler or at the warper. It is probable, however, that the lack of uniformity of tension at the warper causes more weak threads to pull apart during weaving than would be caused by high or uneven tensions at the spooler. Therefore, while the warper may not be entitled to all of the credit from the improvement in Item No. 8, we have placed it in this class.

"Item 9 is the group which contains all breaks which the observer fails to classify. No doubt some of the reduction in this item is due to the spooler but in order to be fair to the warper it has all been placed in the warper group.

"There were 126,985 warp stops on the looms operating on warps made on the old style machinery, but only 98,168 warp stops on the looms operating on warps made on Barber-Colman machines, a reduction of 22.69 per cent.

"Eliminating the improvements due to the automatic spooler, we find that the warper alone was able to reduce the number of stops by 2251, a reduction of only 1.77 per cent. The automatic spooler saved over 11 times as many stops as did the high speed warper."

What the Southern Mills are Doing

DELTA FIBRE CORPORATION, a subsidiary of World Fibre Corporation, of Chicago, will build three hemp mills, one at Crawfordville, Ark., one at Farle, Ark., and another in Mississippi They will use a decorticating "break-up" machine to handle the growth of about 10,000 acres of hemp in Mississippi and Arkansas.

Saco-Lowell Shops recently secured contract from Tallassee Mills, Tallassee, Ala., for equipment, which included large package spinning frames.

U. S. Rubber Co., of New York, has acquired and will operate the Stark Mills, which has been operated as a plant of Calumet Mills, Hogansville, Ga. The company plans a 50 per cent increase in output of cord for tire manufacture.

Eagle & Phenix Mills, Columbus, Ga., manufacturers of colored piece goods, ball thread and cotton rope, are considering shrinking their products, due to many of their customers asking for pre-shrunk products, it is reported.

Pepperell Mfg. Co., Lindale, Ga., are now shrinking a small amount of their goods, and have recently purchased equipment which will enable them to shrink more if they desire.

It was recently reported that unfinished stock of the Thomson Cotton Mill, Thomson, Ga., was being worked off with the intention of closing out the mill. A report has recently been circulated that the houses and buildings will be bought by parties who will operate a towel factory.

McComb Cotton Mill, McComb, Miss., is now running on a full day schedule and will increase the night force immediately. It is rumored that the mill is to soon begin an improvement program, including modernization of machinery and improvement in village. They are also planning to change over to electricity as a source of power.

Houses in the Hartsell Mill village, Concord, N. C., are being repaired and repainted. New roofs are being put on some of the houses and the interiors renovated.

The Spencer Corporation, Spindale, N. C., have purchased a magazine warper creel for handling rayon from the Warp Compressing Machine Co., Worcester, Mass.

The Brandon Corporation, Greenville, S. C., recently purchased a cork roll covering unit to take care of cork rolls now being installed in their mills. The purchase was made from Armstrong Cork & Insulation Co., of Greenville.

Alamance Weaving Co., Burlington, N. C., has purchased 48 new Crompton & Knowles silk looms, which are to be installed at once.

It was recently reported that Gaston County Dyeing Machine Co., of Stanley, N. C., would install a 1-kier dyeing machine with dryers and all accessories for dyeing beams and packages at the Ellenboro Cotton Mills, Ellenboro, N. C. This company also installed a 2-kier beam and package combination dyeing machine complete with dryers in the Amazon Cotton Mills, Thomasville, N. C.

The Priscilla Spinning Co., Gastonia, N. C., manufacturers of fine thread yarns, have placed orders with Borne Scrymser Co. for their new model oil spraying equipment.

It is reported that a plant to manufacture flannel nightgowns and pajamas will be opened in Greensboro, N. C., by Victor Levy of New York.

Proximity Mfg. Co., Greensboro, N. C., are planning constructing 1500 new homes in the village. They have let contract to Tucker & Laxton, of Charlotte, for sewer facilities in about 1500 houses in the villages of the Cone group of mills. The improvements are to cost approximately $250,000.

Cutter Mfg. Co., of Rock Hill, S. C., recently installed additional equipment in their dye plant.

Certified Laboratories, Inc., Marble Falls, Texas, which recently took over the assets of the Marble Falls Textile Mills Co., has installed a complete new plant at a cost of $250,000. They manufacture absorbent cotton and gauze for hospital use.

It has been announced that Mengden & Sons Co. will construct a plant in Houston, Texas, for the manufacture of rope, cordage and twine, which will cost about $165,000.

The Tennessee Eastman Corp., Kingsport, Tenn., has let contract for construction of the new unit for manufacture of cellulose acetate yarn to Ridge Construction Corp., of Rochester, N. C. This contract covers buildings only. The construction is scheduled for completion in October.

Darlington Mfg. Co., Darlington, S. C., has purchased oil spraying equipment from the Borne Scrymser Co. It is the Breton Minerol Process type equipment.

Commander Mills, Sand Springs, Okla., have retained J. E. Sirrine & Co., of Greenville, S. C., as engineers to complete and modernize bleachery project. This will involve an expenditure of $72,000.

Cotton Comment

New Orleans, March 14th, 1931.

AFTER WORKING into new high ground during the latter part of February, the cotton market assumed a reactionary tendency, values declining sharply meanwhile. However, compared with one month ago, prices are only moderately lower, Middling in New Orleans today 10.41 versus 10.67.

A depressing influence during the period was modification in ideas as to the probable decrease in the acreage to be devoted to cotton this year, regarding which Chairman Stone of the Federal Farm Board was quoted as saying in effect that he does not expect a material reduction in the cotton acreage this year, but he thinks the lack of means to buy fertilizers probably will tend to decrease the yield per acre. The Crop Reporting Board was quoted as saying that there is a surplus of farm labor, with 164 men for 100 jobs on the farms. Private estimates issued thus far, as to farmers' intentions to plant, range from about 8.5 to 15.1 per cent decrease in the acreage to be devoted to cotton this year.

Other unfavorable features were returns showing a comparatively small consumption of American lint cotton by the world during the first half of this season, large stocks of American cotton on hand in the world at the close of January, unfavorable British Board of Trade returns for February, weakness in foreign markets, small spinners' takings of American, and the recent decline in the New York stock market.

Constructive developments were small sales of fertilizer tags, bullish domestic cotton textile advices, larger exports of late, a fair demand for spots in the South, and the recent sharp recovery in the price of silver.

Recently the New York Cotton Exchange service estimated the world's consumption of American lint cotton for six months ending January 31st at 5,496,000 bales compared with 7,050,000 for corresponding time last season, and stated that world mill stocks were 2,423,000 compared with 2,708,000 last year, but that world stocks of American aggregate 14,779,000 bales against 12,051,000 last year.

INTERNATIONAL FEDERATION OF MASTER SPINNERS REPORT AS TO CONSUMPTION—LINTERS NOT INCLUDED

Aug. 1 to Jan 31—Bales—World—	This season	Last season
American	5,278,000	7,083,000
Other kinds	5,886,000	6,119,000
All kinds	11,164,000	13,202,000

ASSOCIATION OF COTTON TEXTILE MERCHANTS OF NEW YORK, FEBRUARY STATISTICS

—Yards—	February 1931 4 weeks	January 1931 4 weeks	February 1930 4 weeks
Production	212,168,000	202,149,000	266,849,000
Sales	326,691,000	239,106,000	243,861,000
Shipments	248,354,000	210,597,000	274,543,000
Stocks	319,328,000	355,514,000	445,125,000
Unfilled orders	395,802,000	317,465,000	360,889,000

February sales of domestic cotton goods were 154.0 per cent of production against 118.3 in January this year and 91.4 in February last year. Shipments were 117.0 per cent of production against 104.3 per cent in January this year and 103.0 per cent in February last year. Stocks at the end of February decreased 10.0 per cent against a decrease in January this year of 2.3 and a decrease in February last year of 1.7. Unfilled orders at end of February increased 24.7 per cent against an increase of 9.9 in January

this year and a decrease in February last year of 7.8.

CENSUS REPORT

United States—Bales—	This season	Last season
Consumption, lint, February	433,510	494,396
Consumption, linters, February	53,087	61,108
Consumption, including linters, February	486,597	555,504
Consumption, lint, 7 months	2,899,942	3,808,741
Consumption, linters, 7 months	387,183	487,617
Consumption, including linters, 7 months	3,287,125	4,296,358
Mill stocks, February 28th	1,547,759	1,806,040
Stocks in pub. stg. and whs., Feb. 28th	7,314,450	4,858,243
Stocks in mills, pub. stg. & whs., Feb. 28th	8,862,209	6,664,283
Stocks in mills, pub. stg. & whs., Jan 31st	9,552,929	7,230,524
Active spindles during February	25,763,408	28,920,162
Active spindles during January	25,611,458	29,177,228

MOVEMENT TO MARKET AND EXPORTS FROM UNITED STATES

Hester's figures—Bales—	This season	Last season
Weeks in sight (marketed)	120,629	110,928
In sight Aug. 1st to March 13	12,827,019	13,634,731
Exports for week from U. S., incl. Canada	147,000	77,500
From Aug. 1st to March 13th	5,305,800	5,634,800

SPINNERS TAKINGS OF AMERICAN COTTON

Aug. 1 to Mar. 13—Hester's figures—Bales—	This season	Last season
North and Canada	1,097,000	1,527,000
South	3,034,000	3,758,000
Foreign	4,132,000	4,868,000
World	8,263,000	10,153,000

WORLD'S VISIBLE SUPPLY OF COTTON, MARCH 13th.

Hester's figures—Bales—	This year	Last year
American	7,651,656	5,275,122
Other kinds	2,607,000	2,775,000
All kinds	10,258,656	8,050,122
Middling spots, average of 10 markets today	9.97	14.19

Returns to Secretary Hester, from ten southern states, for seven months, August to February, both inclusive, officially reported by Agricultural Bureaus and State Boards, show sales of fertilizer tags to have been 970,775 tons versus 1,571,743 for corresponding time last season, 1,224,319 for same period season before last and 1,728,233 for a like period in 1928.

Regarding sales of fertilizer tags, the American Crop Service, under date of March 11th, states in part: "Early sales last season were unusually large, which partly accounts for the very low percentage figures for this season as compared with last season. It is believed that sales of fertilizer will show marked improvement in the near future. Credit conditions have been comparatively 'tight' during the past few months. Late reports indicate that of the $45,000,000 special Congressional appropriation for seed, feed, fertilizer and farm machinery, only about 14 per cent of the amount had been loaned to farmers to March 3, 1931. Of this amount probably 50 per cent or more was loaned during the week ending March 3. With the rapid reorganization of closed banks over the South, credited conditions are expected to improve materially before planting time." The same authority states in part as regards boll weevil, "Excessive weevil damage may occur in South Texas areas on account of mild winter temperatures not completely killing the 1930 cotton plants." Concerning planting and recent weather conditions, the following is obtained from the same source: "Excessive rainfall over most of the belt, especially in Eastern Texas and the Lower Mississippi Valley, together with light rainfall over much of the northern one-third zone, delayed farm work during the past week. Rainfall in West and South Texas delayed preparation and planting in those areas. In South Texas crop reporters state that planting is from two to three weeks late, except for a few scattered early planted fields. The general rainfall was beneficial in most areas and will cause vegetable matter recently plowed under to rot and become available plant food, in addition to building up the none too plentiful supply of subsoil moisture. With the return of favorable weather conditions, planting is expected to make rapid progress in the extreme southern edge of the belt."

TOTAL AVERAGE RAINFALL IN TEXAS

In inches—Year—	1931	1930	1929	Normal
February	2.98	1.53	1.30	1.79
Nov. to Feb. inclusive	10.41	8.13	8.75	8.11

Spot sales at reporting Southern markets the past week were 55,532 bales versus 58,562 for the previous week of this year and 37,716 for the past week of last year.

New England Mill Situation

March 18, 1931.

THERE has been an improvement in the market for the products of New England fine goods mills which, together with careful operation and the first fruits of the long period of curtailment, is creating a more optimistic spirit. Room for improvement has existed for a long time and there has certainly been every reason for New England mills in common with others throughout the country seeking a more profitable state. The plight of the fine goods mills has in several respects been worse than that of the coarse goods producers, for they have not even had the spurts of profitable business that have occurred between the lower moments for other cloths, but have seen only a steady decline over more than a year in the prices of both staples and fancies. Now, however, the first upward turn in a long time has come about and has given rise to the belief that the worst is past.

Regulation of production in New England has been necessarily very strict. It has required in some cases almost a policing of the industry to promote its best interests and discourage unwarranted price cutting and selling below cost. The great aggregations in the fine goods industry have worked steadily for a controlled production, and the smaller units have either been won over to such a program or, as in many instances, have abandoned the production of staple combed goods and gone more and more into the more highly styled and somewhat less competitive field of fancy goods manufacture. Some of these latter by fortunate choice of styling and proper selling have been making out very well. Such organizations as the Nield Mfg. Co. of New Bedford and Aldrich Brothers of Providence and Moosup, Conn., as instances, have for a considerable time kept clear of making staple lawns, voiles, and the like, according to their officials, and their efforts in fancy goods production have been encouraging.

Again there are some fine goods mills in New England, among them some widely known for the quality of the product, who have fallen in with the programs of rayon manufacturers and have been securing business on sample pieces developed by the company in their mills and sold through the rayon producer or its agents.

The position of several of the Eastern fine goods mills is indicated by the fact that producers of regular and extra hard twist cotton voiles are sold up for several weeks ahead and are getting over one cent per yard more for goods than a month or two ago, that mills making lawns are well sold and are getting premiums through scarcity of early delivery, that on rayon crepes most producers are sold six weeks ahead and some have no deliveries before 10 to 12 weeks, and that not a few other cloths have shown similar improvement.

During the month a development of interest has been the re-opening under recent date of the Number 2 cotton manufacturing unit, a print cloth mill, of American Printing Company, in Fall River, re-employing about 400, and understood to be running on 80 x 80s principally. A downward revision of wages was put into effect, said by unions to be about 10 per cent or more, and a strike was called. This has proved unsuccessful, however. Progressive re-opening of the other three units is contemplated if this first move is successful. Nathan Durfee of the company in announcing the re-opening said it was possible due to market improvement which made it no less costly to operate than to remain closed down. It was in line with an unemployment relief plan of Governor Ely.

Another strike, likewise short-lived, occurred during the month in Lawrence, Mass., but was restricted to the woolen mills, cotton mills being unaffected. Employees of the American Woolen Company's mills struck due to a change of procedure believed to give the operator more work at no increase in remuneration, but the plan was abandoned and the trouble cleared up. While some other industries were affected for the moment, the cotton mills were not disturbed.

Improvement of cotton goods markets this year was encouraging, after the continuing backlog of unsuccessful business records in New England for the past year. Most of the month's developments in the New Bedford area were in the form of annual reports that were not very encouraging. Nield Mfg. Company of New Bedford reported $18,000 actual manufacturing loss for the year, along with $60,000 dividends, $50,000 inventory write-off, and $30,000 for curtailment program of 35 per cent. Outlook for this year was better. Officers and directors were re-elected.

Individual Mill Reports.

Nashawena Mills of New Bedford reported manufacturing profit of $6,000 before depreciation, but a net loss of $278,502.49 after all charges except depreciation. Inventory loss was placed at about $294,000. Nonquitt Mills of New Bedford reported operating loss of $128,323.18 and inventory loss of $116,158.68. Recommendation of liquidation was contained in the financial report, and stockholders are to decide this matter at a meeting next month. Pierce Manufacturing Company of New Bedford reported loss of $283,048, greatest part of the figures being inventory write-off. The company declared a dividend of $1.50 per share, the last previous payment having been $2. Pairpoint Mfg. Company of New Bedford reported manufacturing loss of $14,083. New Bedford Cordage Company reported success in absorbing inventory write-offs as well as depreciation charge. Reduction in cash and quick assets of $106,860 was reported with dividend payments of $101,454. Common stockholders received 18¾ per cent against 20 per cent in 1929, and preferred 7 per cent in both years.

Land, buildings and machinery of City Manufacturing Company in New Bedford and Taunton were sold at public auction for $60,000, the New Bedford property going for $10,000, Prospect Manufacturing Corporation made up of president, treasurer, and one director of the precent City organization being the buyer. The property included 59,064 spindles and 400 looms and was assessed for $308,800.

In Rhode Island B. B. & R. Knight Corporation and its subsidiaries Fruit-of-the-Loom Mills, Inc., Knight Finance Corporation, and Fruit-of-the-Loom Mills Company reported for 1930 losses of parent company of $702,435.08 before depreciation, which amounted to $174,545.50. Of the subsidiaries the finance corporation showed a slight profit, while the selling house, Fruit-of-the-Loom Mills, Inc., lost over $54,000 and a loss due to organization expenses occurred in the newer subsidiary formed to facilitate sales on the Pacific Coast. Closing of Natick Mill was reported, but the company reported that it did not plan to liquidate any other plants.

A permanent receivership is being arranged for Manville-Jenckes Company to supercede the temporary receivership which has been in effect since the end of February. In the South the temporary receivers have been continued in office, but the superior court of Rhode Island has been giving consideration to the reorganization of the company. An optimistic note is struck by the report that the company has $2,500,000 worth of business on its books for current and contract deliveries, and that several of the mill units are sold up well in advance. Zenas W. Bliss of Providence, R. I., and George W. Urquhart of Hempstead, L. I., were the receivers named by the court to succeed Mr. Bliss and Dexter Stevens, the temporary receivers. Messrs. Bliss, Stevens, and John A. Bough continue to act as temporary receivers in the ancillary proceeding pending in North Carolina. There has been no suspension of business, new spot and contract orders being accepted by the receivers. Dexter Stevens, president, continues in charge of company operations.

Another development of interest has been the reorganization of Kidder, Peabody and Company, important financial institution of Boston and New York, which occurred under recent date. The firm in the past has been prominently mentioned in connection with some of New England's leading textile concerns including certain of the merged enterprises. Whether the changes will be the reason for any altered attitude with regard to textile interests is a matter that is being closely watched in the industry.

Powdrell and Alexander, Inc., curtain manufacturers, reported net profit available for dividends of $124,360 for 1930, as against $483,883 the previous year. Gross sales were $5,997,881 against $6,882,257 in 1929. The Kendall Company of Boston reported net loss of $258,850 for the year as against net profit of $644,776 in 1929. Sales per unit were reported to have appeared favorably for the year, although dollar volume was less, according to H. P. Kendall, president, who also noted substantial operating economies effected. In Boston the annual report of the Merrimack Manufacturing Company was issued, indicating a loss of $2,157,607 for the calendar year 1930, against a 1929 net profit of $507,885 before special charges to contingency reserve. Ward Thoron, treasurer, reported over 49,000,000 yards manufactured during the year, and nearly 60,000,000 yards sold. The southern plant at Huntsville cut production 25 per cent in yards from the 1929 scale, with Lowell, Mass., production cut 59 per cent and 53 per cent cut in activity of the finishing plant at Lowell. Outlook for the Lowell mill was not regarded as promising, although since the turn of the year the southern plant has enjoyed a fair demand and has been able to profit on some of the business booked.

The Ludlow Manufacturing Associates with plants in this country and in India reported a net profit for the year ended January 3 of $116,917 after inventory mark-off and taxes on 1929 business, comparing with net profit the previous year of $2,583,215. The drop in the price of jute and of Russian flax during the year was responsible largely for the shrinkage of the company's profit, but outlook was said to be much better for the year. Regular dividends were paid during the year and declared for this month.

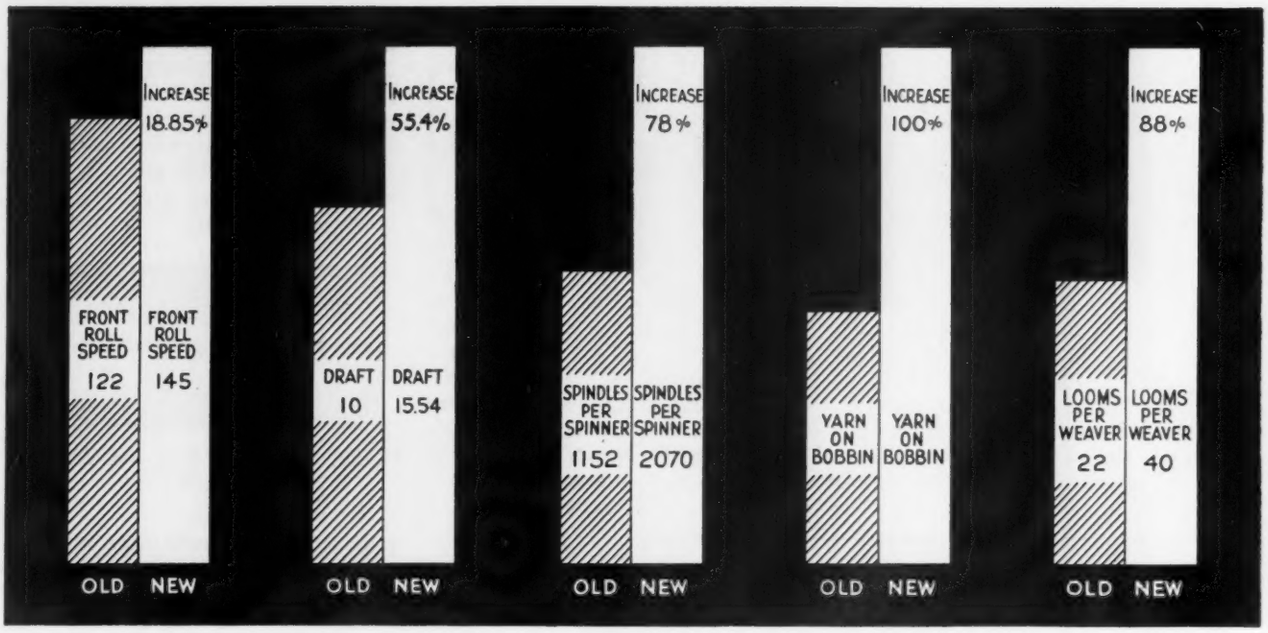
The annual meeting of General Cotton Corporation, recent buyer of the Lincoln and Davis Mills in Fall River, was called for this month at Wilmington, Del., where it is incorporated, but no action was taken due to absence of officers. A subsequent meeting is scheduled for early April.

New Jersey courts have confirmed the sale of the Napon Rayon Corporation's land and factory at Clifton to the Cretona Print and Dye Works, sale being made by Henry H. Parmelee as receiver. Brighton Mills plant in Clifton, N. J., has been sold to the American Colortype Company. About 600 hands are to be employed. Textile plants in the southwestern New York and northwestern Pennsylvania section are reported to have stepped up production to a basis of about five days per week. Fabrics for the automobile trade have been in demand and are declared partly responsible for the improvement.

Arthur S. Sutcliffe, director of sales for 25 years of the American Mills Company, Waterbury, Conn., has retired from active business. He had been with the Amoskeag Manufacturing Company for 15 years prior to joining the Waterbury, concern. American Mills are elastic webbing manufacturers.

Fred Haley, of Warren, R. I., formerly superintendent of the Warren Narrow Fabrics Company, is preparing to manufacture narrow fabrics in Pawtucket, R. I., taking 50,000 square feet of the old Goff mill, former unit of the Phillips-Jones Corporation. Some of the machinery of Phillips-Jones will be taken over, and additional equipment will be added, according to a Chamber of Commerce statement.

A compromise has been reached in the fight over the Potomska Mills in New Bedford. The management had been criticized by Walter Langshaw, president of Dartmouth Manufacturing Company and director of General Cotton Corporation, for failure to submit to stockholders an offer of $53 per share made some time ago by Jerome Newman of New York. At the annual meeting the places on the board of Oliver Prescott and Henry H. Crapo were filled by Philip Stockton of the First National Bank of Boston and Joel M. Barnes of the Barnes Textile Service. Both of the new directors are understood to represent General Cotton Corporation. The balance sheet showed a loss after depreciation of $126,966.16, deduction for depreciation being $75,407.68. Sale of cloth and yarns during the year aggregated $1,590,756.31.



Saco-Lowell Model 31 Spinning Frame

with Saco-Lowell-Roth Drafting System

PROGRESSIVE mill management has again demonstrated the profit possibilities of modern machinery. A prominent Southern mill replaced old Saco-Lowell 3-roll spinning with new Saco-Lowell Model 31 frames and made tremendous savings right through the mill.

Practically doubles number of spindles per spinner.

Doubles the amount of yarn on the bobbin.

Enables weavers to handle 40 looms instead of 22.

The mill is spinning 25.50s filling from 1.65 hank roving, single, at 9000 spindle speed.

On the new frames, with a front roll speed of 145 instead of 122, a 1 7/16″ ring instead of the old 1 5/16″ ring, and an 8″ traverse instead of a 7″ traverse,—they had twice as much yarn on the bobbins. The spinners handled 15 sides of the new 276 spindle frames, instead of 12 sides on the old 192 spindle frames. The weavers ran **forty** looms with the new filling instead of 22 looms with the ordinary filling, and, in addition, filled their own batteries and took off their own cloth.

On top of that, the cloth made with the new filling has a much better face and feel than the cloth made from the old filling.

Mr. Mill Man: You cannot afford to overlook these figures. **They are impressive, instructive and conclusive.** The savings are so worthwhile that you owe it to yourself to let our engineers determine the possibilities of similar results in your mill.

SACO-LOWELL

MANUFACTURERS OF TEXTILE MACHINERY

147 MILK STREET, BOSTON, MASS.

CHARLOTTE, N. C. SPARTANBURG, S. C. ATLANTA, GA.

New Textile Equipment and Publications

The New Universal No. 40 Winding Machine.

The Universal Winding Company, with plant at Providence, R. I., have released a detailed description of the new No. 40 winding machine, which incorporates a number of new features in this process. Purely rotary movement is secured by the use of a new and novel traverse mechanism which eliminates cams and oscillating elements, thereby affording also simplicity of construction and higher operating speed.

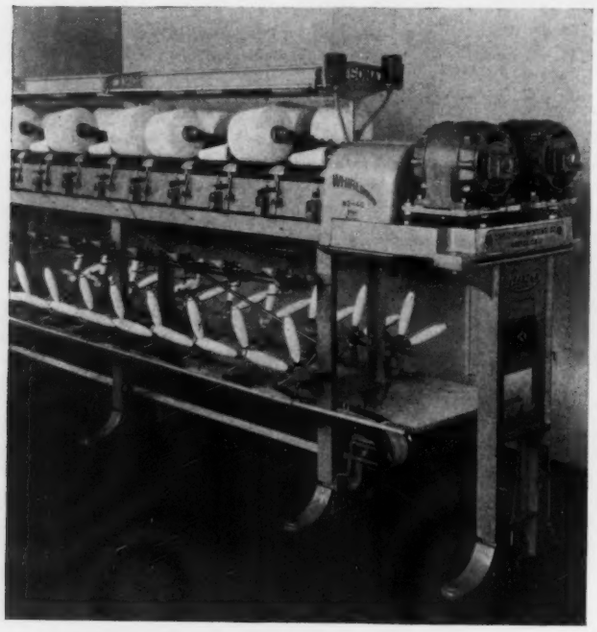


Fig. 1. A section of new No. 40 Winding Machine, in operation position, winding cones.

Fig. 1 shows a section of the new machine in operating position, winding cones for high-speed warper creels on wooden cones. Fig. 2 is a close-up of two spindles, illustrating the new grooved winding drum, shown separately in Fig. 3, which eliminates reciprocating parts for traversing the yarn lengthwise of the package. These winding drums are made of bakelite, and the yarn is guided onto the package through the surface grooves shown. This groove is in the form of opposite crossing helixes extending the length of the roll, the roll being in contact with the yarn package, so that the yarn draws at a tangent to the traversing roll and occupies only a small length of the guiding groove. The groove on the traverse roll is so constructed as to insure that the yarn will be guided from one end of the package to the other and back again without being diverted from its direction of feed or travel at the crossings; this being accomplished by forming the grooves so that the bottom of one is at a different level from that of the other at the crossings, and chamfering the projecting point separating one groove from the other at the crossings. With this construction, the direction of feed is positively controlled even at extremely high speeds, it is pointed out. The company states, after two years of mill operation, and careful laboratory tests, that the new traverse means imposes no perceptible friction or strain on yarn of any number. The positive guiding of the yarn, it is stated, is assured at speeds of between 800 and 1,000 yards a minute. The traverse roll is mounted on a shaft running on ball bearings, permitting even and easy running at high speeds. The only other revolving shaft is the stopping cam shaft, which is slow turning, driven through a gear reduction.

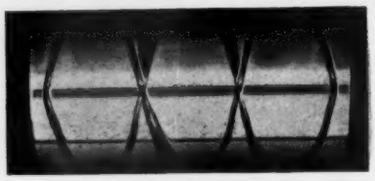


Fig. 3. The New Grooved Winding Drum.

The stop motion has been simplified and made more durable. The breakage lever against which the yarn engages pivots in combination with a stopping lever or dog so that, when the yarn breaks, the breakage lever moves back allowing the stopping lever to move into the path of a stopping cam, located on a slowly turning shaft; as the stopping lever contacts with the stopping cam, it lifts the package from the drum through a ratchet lever connected to the spindle arm and engaged with a pawl on a lever to which the stopping lever is attached, lifting the package through power and not with a spring. There has been added to the stopping mechanism a means for determining the size of the package. Attached to the ratchet lever is a sizing arm adjustable for various diameters, which holds a weight in place until the

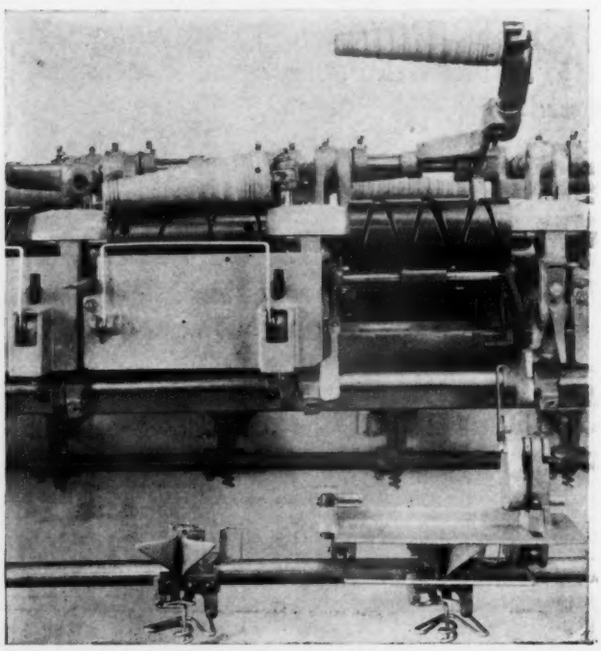
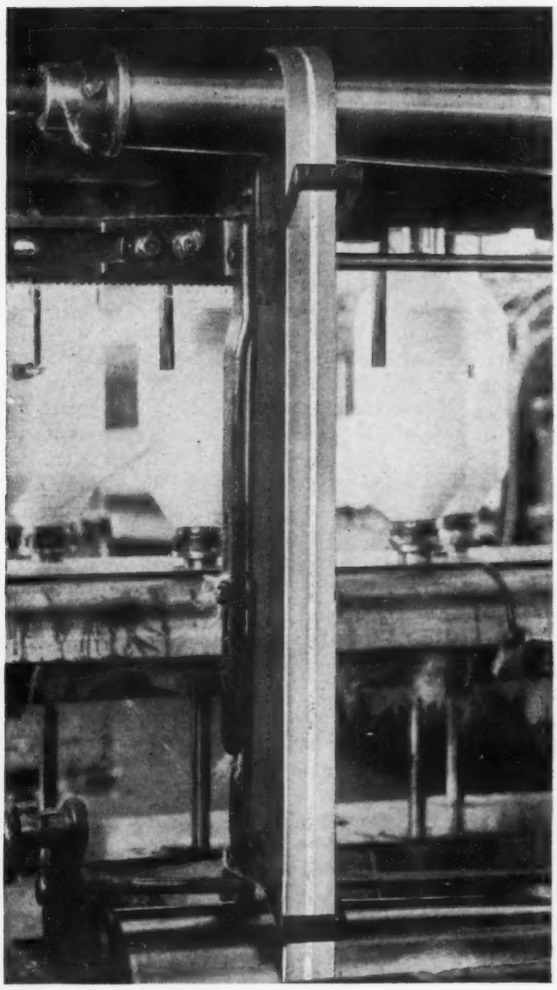


Fig. 2. A close-up of two spindles, on No. 40 Winding Machine, illustrating the new grooved winding drum.



A *belt for cone drives* housed *from wear, slip, and fray*

The stout bias-cut envelope of the Goodyear Compass (Cord) Cone Belt takes surface wear from pulleys and shifting and permits the central cords to carry the load. That is why this fine Goodyear belt is so nearly *stretchless* — why it stays on textile machinery so much longer than other belting.

Where you cannot use endless belting, Goodyear Thor Belting, seamless, offers advantages similar to Goodyear Compass. In Thor, too, edges are guarded by envelope construction from excessive wear in shifting. All the advantages of "raw edge" belts, plus high durability in a protected edge.

All Goodyear Mechanical Rubber Goods for textile mills are specified to work by the G. T. M. — Goodyear Technical Man. He can bring you more work and lower costs from plant belting. To learn of the assistance he has been in numerous mills, just like yours, write to Goodyear, Akron, Ohio, or Los Angeles, California, and ask the G.T.M. to call.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS • MOLDED GOODS • HOSE • PACKING

desired diameter is reached, when the weight trips, causing the stop motion to act, thus lifting the package from the traverse drum.

Starting is secured by lifting a lever to start the winding spindle. The starting lever is in combination with the stopping mechanism; when the thread guard is moved or pivoted backward through the action of the stopping lever, it allows the starting lever to lock the thread guard in place.

A new spindle has been adopted for this winder. The spindle is so constructed that in combination with the wood cone or tube the cone or tube will not turn backward when the spindle is idle. This is to prevent the yarn on the partly-wound cone from getting caught in any moving mechanism. The spindle does not extend through the wood cone; this being to prevent a dead end projection for yarn to wrap around. The latch for holding the cone in place is on the back end, and the back end of the cone is recessed to accommodate the latch on the spindle. This latch operates automatically when the spindle swings into place, and releases its hold when the spindle swings out. The patented double bushed bearing is self-lubricating.

An empty bobbin conveyor is added to the winder. This is an endless fabric belt running through the center of the machine underneath, so that one conveyor takes care of both sides of the machine. The conveyor is driven by a chain from a sprocket on the stopping cam shaft on the end of the machine remote from the drive end. No extra power is necessary for the conveyor since it consumes very little effort to drive it. Adjustment is provided for taking up slack in the belt.

The tension is of the self-threading, disc type. The winder is equipped with a switch control, so that it can be stopped anywhere along its length. The switch control is located on the supply shelf on top of the machine.

The winder is coupled in units of ten spindles each, up to 100 spindles in a row, 50 spindles on a side. The spindles are ten inches apart. Each side is independently driven by separate motors, which are mounted on adjustable bases. A 1½-horsepower motor is required to drive one side of 50 spindles.

The machine can be adapted for winding either cones or tubes. The cones may be built up to 8-inch diameter at the base, which permits the winding of four pounds of yarn to the package; with 30s yarn this would amount to 100,000 yards.

Yarn speeds may be easily changed through the driving mechanism by simply changing two gears, making the machine very flexible, the company explains; up to 200s yarn having been handled satisfactorily.

The elimination of cams and reciprocating parts, it is pointed out, should reduce maintenance requirements. In addition to the traversing means not perceptibly straining the yarn, it is further explained that the rolling action of the guide does not chafe the yarn, as the drum drives the package at the same speed as the yarn delivery. It is stated that the higher speed helps to clean the yarn as it comes from the bobbin through the action of centrifugal force and the ballooning of the yarn. More convenience for the operator, through the self-threading tension, the automatic release and locking of the cone, and the automatic carrying away of empty bobbins, permits higher operative production, and the higher speed gives a higher machine production, it is explained.

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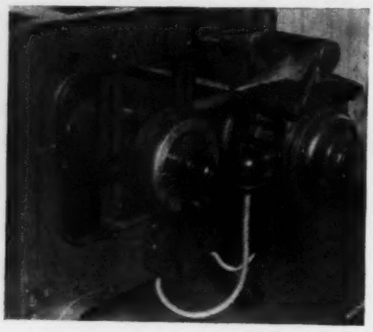
Rockwood Short-Center Flat Belt Drive . . .

The Rockwood Mfg. Co., Indianapolis, Ind., has announced the new Rockwood short-center flat belt drive, an application of which to a spinning frame drive is shown herewith. The drive comprises a Rockwood motor base, two Rockwood pulleys, and a Rockwood-approved flat leather belt.

The drive has an unusual feature in



Short-Center Flat Belt Drive.

that, as will be noted, the motor is mounted on a free-swinging pivot. The company explains that the force of gravity—the weight of the motor—maintains uniform belt tension at all times; that a correct tension, once established, is unchanged by belt stretch or centrifugal force. Rockwood engineers point out that the pulling capacity of a drive is equal to the pressure exerted between the belt and pulleys multiplied by the value of the coefficient of friction between their surfaces; or, that the amount of belt pull is proportionate to the tension in the belt, and the amount of grip between the belt and pulley surfaces. Efficiency and life of the belt is increased, it is explained, because when the drive is not in service, the belt is free to contract in length, permitting its fibers to recuperate. The bases are of all-metal construction, and provide for simple adjustments for motor size, pulley alignment and belt length; special length belts not being required, it is explained. The base may be mounted on floor, wall or ceiling, to drive a single machine or a line-shaft group; the only restriction for any application being that the driven shaft shall not be lower than the motor shaft. Six standard bases cover size requirements for motors from 1 to 50-horsepower at 1,800 r.p.m. On the drive shown in the illustration, it is pointed out, there is less than one inch space between the pulley races. A 7½-horsepower 1,800 r.p.m. motor is used.

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Booklet on C. & K. High Speed Worsted Loom.

Crompton & Knowles Loom Works, Worcester, Mass., have published and are distributing an attractive booklet descriptive of their new high speed worsted loom. A foreword, by Irving H. Verry, vice-president, stressing the new features of the loom which make it attractive to management, loom-fixers and weavers. Detailed and clear descriptions of all of the points of construction and operation are then given. The use of the modern motif in printing, with the utilization of color and balance in the design of the booklet, make it attractive as well as instructive.

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Rayon Upholstery.

An important new development in the manufacture of rayon upholstery fabrics for out-of-door furniture was featured in the upholstery of a glider, exhibited by Old Hickory Furniture Company of Martinsville, Indiana, at the recent Grand Rapids Furniture Mart. The glider was covered with cord de rae, a rayon and cotton ribbed material treated with a pyroxylin backing, which makes the material waterproof and thoroughly practical and at the same time preserves its textural beauty, it is stated.

:: :: ::

New Thread Cone Holder Announced.

A simple, convenient, and inexpensive device has just been developed by the Union Special Machine Company, of Chicago, for holding thread cones, according to that concern. They state that the design has been carefully worked out to prevent thread from falling, and that in several plants already completely equipped with the "No-Break" holders, breakages have been effectively eliminated.

COSTS CUT

BY USING H&B REPLACEMENT PARTS!

WE strongly urge that you use only H & B Replacement Parts in reconditioning your H & B Equipment. They promise lowest ultimate cost, reduce necessity for frequent repairs and keep equipment functioning at highest efficiency.

No round-the-corner shop or jack-of-all-trades can duplicate H & B parts. Our modern equipment, automatic machines, metallurgical specifications and standards of accuracy assure fit and continued trouble-free operation. When ALL costs are accurately figured, you will find H & B parts cheapest and best.

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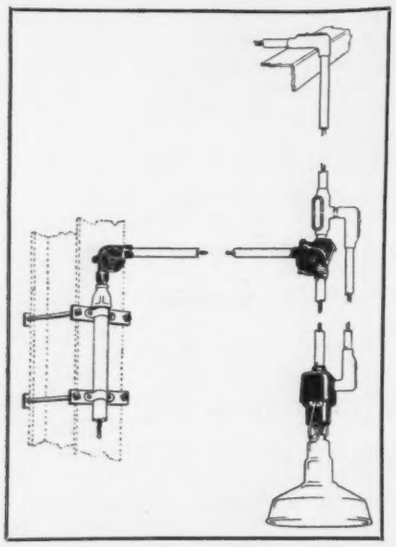
Safety-Lowering Hangers.

The Thompson Electric Company, 1438 W. Ninth St., Cleveland, Ohio., state the new lamp lowering hangers which they have recently placed on the market, make high lamps easy and safe of access on the ground level for cleaning, relamping, etc., thus making it possible to clean reflectors as they should be cleaned.

A hand line, which can be attached to any column, makes it possible to lower the lights merely by releasing the hand line. The company points out that servicing of overhead lamps is much more likely to be done with regularity and efficiency if proper facilities are provided.



As shown by the illustration, the No. 149 corner pulley can be secured in place without drilling and tapping the columns, by clamping onto the side of a column suitable bars equipped with another clamp for gripping a short piece of 1¼ inch pipe attached to the No. 149 pulley by means of a reducing coupling. Two of these clamping devices spaced a few inches apart on the column will hold the pulley securely, the company states, and enable it to point in any desired direction. The 1¼-inch conduit can extend down the column to a point 5 or 6 feet above the floor, or it need not extend below the lower clamp.

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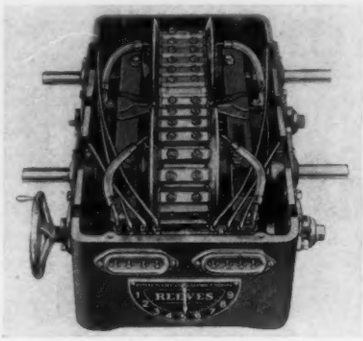
Tubes and Bobbins For Ring Spindles.

J. I. Bernitz, 47-49 West Street, New York, representative for Adolff compressed hard paper bobbins, is distributing a booklet entitled, Tubes and Bobbins for Ring Spindles, in which is given interesting information pertaining to the fit of tubes and bobbins and the relation of correct fitting to the rotation of the tube. A copy will gladly be sent to anyone making request.

The New Enclosed Design Reeves Transmission . .

Reeves Pulley Co., Columbus, Indiana, state that their new enclosed design variable speed transmission embodies many improvements over previous Reeves enclosed designs. They state that in this new unit, the standard internal operating parts of the Reeves transmission are totally enclosed in a compact, neat and symmetrical cast iron case. It is pointed out



New Enclosed Design Transmission.

that the enclosure affords complete protection in all machine applications where the operating parts of the transmission must be guarded from water, live steam, chemical fumes or abrasives.

Another feature stressed by the makers of the new enclosed transmission is the improvement of lubrication facilities, complete lubrication of all bearings being accomplished through force feed fittings, located in two recessed panels at one end of the transmission.

The new enclosed design Reeves transmission is built in six sizes, covering requirements from fractional to 10 horsepower, in all speed ranges, and can be mounted on floor, ceiling or in vertical position, the company states.

:: :: ::

New Vapor-Proof Equipment . .

A complete new line of heavy duty vapor-proof equipment has just been developed by the Ivanhoe Division of the Miller Company, Meriden, Conn., according to recent announcement. The company points out that these units were designed to protect the lamp and electrical connections from smoke, dust, fumes, and vapors, in industrial locations where the electrical equipment is subject to these severe conditions.

The equipment is available in the bowl, angle, flat cone, dome, and holder and globe types, for use with lamps for 150 to 500 watt.

It is stated that they are of the latest improved construction, all metal parts being of aluminum or brass with the exception of the reflector which is steel porcelain enameled with the new Ivanhoe acid proof enamel which has proven under repeated tests its ability to withstand the destructive effects of various acids under the most severe conditions.

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Safe-ty Strapping System . . .

The Brainerd Safe-ty Strapping System is an improved method of binding boxes, crates, cartons, bundles, packages, etc., by means of strong steel strapping—and sealing the ends of the steel strap, under tension with a special design steel seal, according to the Brainerd Steel Corporation, Warren, Ohio. The result, they state, is a shipment so strongly re-inforced that it arrives at its destination in perfect condition. It has had full protection against damage from shocks, jars, jolts and all the rough handling common under modern high speed shipping conditions. They also point out that pilferage is impossible because the shipment cannot be opened and resealed.

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Two New Dyestuffs.

Newport Chemical Works, Inc., Passaic, N. J., recently placed Newport Silk Brilliant Blue 10G and Anthrene Brilliant Violet 2B Paste Fine, two new dyestuffs, on the market. They state that the first named possesses better fastness, and that it is of particular interest for pure or weighted silks for brilliant blue and green tones. The latter is characterized by ease of reduction, stability of the reduced vat, levelling and penetrating properties, it is stated. Attention is also called to the fact that it is a very finely divided color paste and hence suitable for printing as well as dyeing by the pigment padding method.

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Treating Hosiery for Various Finishes . .

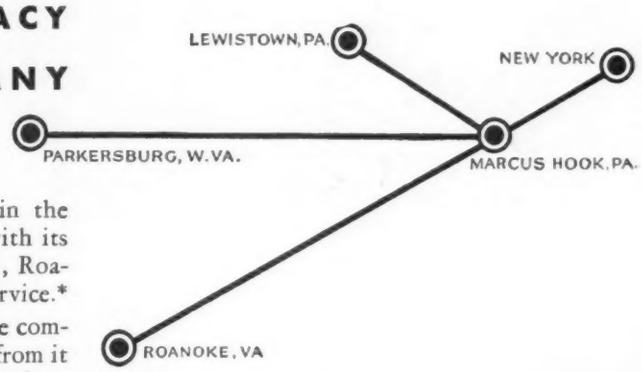
The proper treatment of hosiery in the application of finishing compounds to produce various effects is now quite as important as proper dyeing, it was recently explained by Scholler Brothers, Inc., Amber and Westmoreland Sts., Philadelphia, Pa., manufacturers of materials for this purpose. A wide range of prepared products are used for the purpose.

Chemical dull finishes are now produced which are permanent, it is pointed out. The dull finish may be used in conjunction with a size or filler which imparts body, causing the goods to retain their length and shape on storing. Softening agents can be incorporated, it is explained, to cause the goods to remain soft and elastic without shrinking.

Teletypewriter installation in the Marcus Hook, Pa., headquarters of The Viscose Company

TELETYPEWRITERS

SAVE TIME—INSURE ACCURACY FOR THE VISCOSE COMPANY



THE Viscose Company, largest manufacturer of rayon in the world, connects its headquarters at Marcus Hook, Pa., with its New York sales office, and with mills at Lewistown, Pa., Roanoke, Va., and Parkersburg, W. Va., with Teletypewriter Service.*

"When we first installed the service," an official of the company says, "we had no idea we would get the advantages from it that we have. We put it in originally just to transmit orders. But soon every department was using it to save time and insure accuracy in handling important matters."

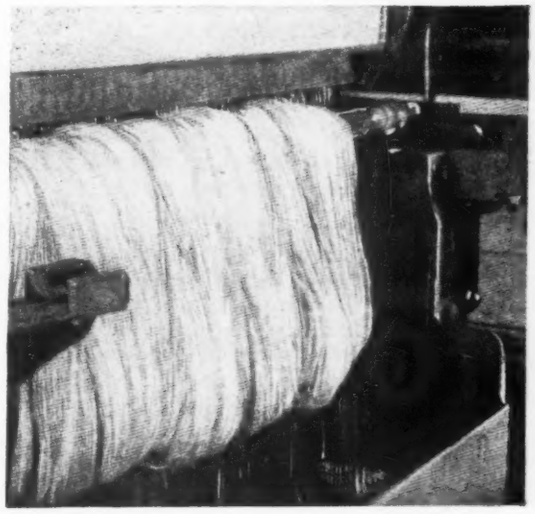
Like most other textile concerns, The Viscose Company uses Teletypewriters primarily to give improved service to customers. Orders are transmitted directly to the plant concerned the instant they are received. Details are adjusted in minutes. Production started immediately. Deliveries speeded by hours, or even days.

In addition "conversations" are carried on easily between officials at different offices and mills. Engineering—production—accounting—purchasing—and traffic matters are transmitted quickly and accurately. Shipments are made more rapidly than before.

Your local Bell Telephone Company will gladly give you complete information about this modern communication method, which cuts costs, speeds all operations. Call the Business Office.

* * *

**Teletypewriter Service provides continuous and instantaneous typewritten communication between all separated units of a company, whether they are 300 feet or 3000 miles apart. A message typed on one machine is identically reproduced at the same moment on all connected machines.*



Bleaching the skeins of thread to the desired whiteness

NEWS ITEMS *with a Textile Slant*

Sectional Wire Partitions.

Throughout the textile industry there is a noticeable increase in the use of sectional wire partitions, according to the Cyclone Fence Company, Waukegan, Ill., who state that this type of partition embodies many desirable features, both from the standpoint of economy and utility.

For example, safety is promoted by enclosing dangerous machinery and equipment with sectional wire partitions. Electric switchboards, transformers, generators, etc., can also be enclosed to advantage with these wire partitions, and being made of woven wire, they permit practically complete vision from the outside, it is pointed out.

Showing the application of sectional partitions in industrial use.

It is stated that wire partitions are especially fitted for mill supply rooms, as the partitions provide a safe storage room, and at the same time admit light and air, thus making it possible to keep the room dry and filled with fresh air.

Many textile mills use sectional wire partitions to utilize to advantage the extra floor area reserved for future expansion. For example, it is explained, most mills construct weave rooms so that extra looms can be added from time to time, which leaves bare floor space at the end. Here is an ideal place for the cloth room, close to the looms, it is pointed out. But still it may not be desirable to build a permanent partition. It is stated that this could be partitioned off with wire partitions very economically, and that it could be made into a light, airy cloth room until the space is needed for extra looms, after which time it would be very easy to remove the partitions and use them in some other part of the mill.

In dyeing, bleaching and finishing plants, wire partitions are used to great advantage for partitioning off space for storing dyes, chemicals and other supplies, it is stated.

Another example of the use of wire partitions pointed out is for the yarn supply room in hosiery mills, it being explained that in the knitting room there is a great advantage in having the yarn handy at a central point near the machines, and that by means of wire partitions this is possible as the partitions do not obstruct the light and ventilation of the knitting room when installed at a central point. It is stated that the same advantages apply when sectional wire partitions are used to enclose the space where finished stocks are kept.

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Rumor that Wissco Card Clothing Will Be Discontinued Unfounded.

In view of recent rumors to the effect that the manufacture of Wissco card clothing would be discontinued, inquiry of the Wickwire Spencer Steel Company, 41 East 42nd Street, New York City, manufacturers of Wissco non-strip card clothing, divulged that such rumors are without foundation. The company replies that they have plans for the future involving improvements in the construction of the clothing, and state that they are receiving a continued interest in this development. The Wissco clothing is produced under U. S. Patent No. 1759563.

Duplan Silk Company Purchases Two Properties.

The Duplan Silk Company of New York and Hazleton, Pa., have purchased through H. M. McCord, 100 East 42nd Street, New York, the Marietta, Pa., mill, formerly owned by the Amalgamated Silk Company, and the Slatedale, Pa., mill, formerly the property of Post & Sheldon.

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Uses of Cellophane.

The use of Cellophane as a modern packaging material for textile products was featured recently in a boardwalk window display at the Du Pont exhibit in Atlantic City The Cellophane-wrapped merchandise shown in the display included the following items: utility cloths, wash cloths, Martex towels, absorbent gauze, comfort and blanket covers, sheets and pillow cases, crib sheets, garter sets and belts.

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New Bemberg Constructions.

Following recent presentation by American Bemberg Corporation to silk weaving mills and garment manufacturers of some forty new and different constructions of Bemberg, a number of silk mills are now working against time on production of new fabrics of Bemberg, according to E. C. Morse, manager of the co-operative merchandising department. He said some of these new constructions are based on outstanding successes abroad, while others were initiated and designed by the American Bemberg fabric creation department.

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Appointed Southern Manager . . . .

F. C. Poley was recently appointed southern district manager for Lincoln-Schlueter Floor Cleaning Machinery, with offices and warehouse at 1103 Oak St., S. W., Atlanta, Ga. This organization manufactures floor cleaning, sanding, refinishing and maintenance machines, and maintains throughout the country sales engineering organizations for the purpose of working with manufacturing plants, institutions and office buildings on labor costs and maintenance costs on floor cleaning.

Mr. Poley.

Mr. Poley is well known to the southern textile trade, having been for four years sales manager of the Selig Co., in Atlanta.

3 Reasons

Why You Should Look Over the Bedaux Principle

1—It increases production.
2—It reduces labor costs.
3—It increases labor earnings.

In 250 industrial plants using the Bedaux Principle for the last twelve years the average figures were: Increased production 44%, reduced labor costs 20%, increased labor earnings 15%.

Those figures should convince you that the Bedaux Principle of human power measurement is worthwhile. Learn how this principle may be applied to your plant. Learn how it reduces costs by raising wages. Learn how accurately it utilizes energy that was formerly wasted. Learn how it encourages better work.

Further details gladly furnished to interested executives on request.

THE CHAS. E. BEDAUX COMPANY
OF NEW YORK, NC

DOUGLAS S. KEOGH, *President*
271 MADISON AVE.,
NEW YORK CITY

ESTABLISHED 1916 BEDAUX B

H. B. CRAFT, *Vice-President*
in charge of Southern Operations,
30 CAMDEN ROAD, ATLANTA, GA.

SOME CONVENTION DATES.

The Southern Textile Association's annual convention is to be held on June 12th and 13th at some place to be announced later by Secretary W. C. Taylor. In the meantime, the Carding Division in Anderson, S. C., on April 10th; the Eastern Carolina Division in Raleigh, N. C., on April 17th; and the Master Mechanics Division in Greenville, on May 8th.

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D. J. Dunn to Represent Thomas Halton's Sons . .

Thos. Halton's Sons, manufacturers of jacquard machinery, Philadelphia, has recently appointed Dennis J. Dunn to be their southern representative with offices in Charlotte, N. C. Mr. Dunn has long been associated with the textile industry and is in a position to be of important help to southern manufacturers. His thorough knowledge of textile machinery, particularly Jacquards, and his services for harness work are at the disposal of any manufacturer in that territory.

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Lactic Acid.

Lactic acid is now being manufactured by the Lactate Corporation, 7 Van Brunt Street, Brooklyn, N. Y., by a process which the company states they developed in their own plant. They state they are making the following grades of Lactic acid: 22 per cent Lactic acid, light; 22 per cent Lactic acid, dark; 44 per cent Lactic acid, light; 44 per cent Lactic acid, dark.

:: :: ::

Nuveyor.

The United Conveyor Corporation, Old Colony Building, Chicago, recently announced the publication of a new catalog entitled, Nuveyor. It is explained that the Nuveyor is a new development in the field of heavy duty, pneumatic conveying, and was developed primarily to meet the requirements of clean and economical ash disposal for the large power plants.

:: :: ::

The Beco-Turner Baffle Wall . .

"The Beco-Turner Baffle Wall" is the title of the first folder published by the Boiler Engineering Co., 24 Commerce St., Newark, N. J., since its affiliation with the Plibrico Jointless Firebrick Co., of Chicago, Ill. All owners and operators of water tube boilers who are interested in maximum fuel economy should have a copy of this new six-page folder, the company states. They say the folder contains valuable engineering information on boiler baffle walls and is thoroughly illustrated with actual examples of baffle walls applied to all types of water tube boilers, horizontal and vertical. A free copy will be sent to anyone making request of the company.

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Pontamine Fast Orange EGL .

The dyestuffs department of E. I. du Pont de Nemours & Company has announced Pontamine Fast Orange EGL, a direct dyestuff producing brilliant shades of orange slightly redder than those obtained with Pontamine Fast Orange EG. It is characterized by excellent solubility and extremely good level dyeing properties, along with good fastness to light, chlorine, hot pressing, perspiration and rubbing, the company states.

:: :: ::

Formic Acid.

Victor Chemical Works, Chicago, recently presented a small booklet entitled "Formic Acid". Some of the topics discussed in this booklet are: Economy Features of Formic Acid; Action of Acids on Cotton and Rayon; Dyeing Chrome and Acid Colors; Formic Acid as a Reducing Agent, and a host of other equally interesting subjects.

:: :: ::

Campbell Feed Water Regulator.

The Atlas Valve Co., 282 South Street, Newark, N. J., recently published a price and data book concerning the new Campbell feed water regulator. They state this new data and price book names all of the advantages of the Campbell regulator, and shows in detail how it is hooked up under various conditions, as well as how it is installed, length of sampling pipe, etc.

:: :: ::

Solvoil.

A new product for preparing soluble pine oils and other products has been placed on the market by Glyco Products Co., Inc., Bush Terminal Bldg. No. 5, Brooklyn, N. Y., which is called Solvoil. It is a brown viscous liquid, alkaline in reaction. One part of Solvoil mixed cold with six parts of pine oil, kerosene, naphtha and many other similar products or mixtures, produces a clear homogeneous solution, which when thrown into water results in a silky emulsion that is ideal for disinfecting, spraying, deodorizing and textile applications, the company states. They say it acts as a solubilizer for oils containing colors, pigments, etc., and increases penetration in fibers, leather, textiles, wood, etc., because it lowers surface tension.

:: :: ::

New Bulletin.

A new 12-page bulletin of standard letterhead size on Victor Damper Regulators has just been published by the Atlas Valve Co., 282-286 South St., Newark, N. J. The company states that the bulletin thoroughly covers three types of damper regulators: No. 501, for low pressure and vapor heating boilers; No. 502, for medium pressure power boilers; No. 503, for high pressure power plants. The bulletin is thoroughly illustrated, giving complete data and prices. It shows how to hook up with a complete list of parts and cost of parts.

"Wear Cotton" Festival at Gastonia

From March 5th to 7th, at Gastonia, N. C., the Gastonia Woman's Club sponsored a "Wear Cotton" Festival, where, through the cooperation of The Cotton-Textile Institute, Inc., and the Durene Association of America, latest styles in cotton wearing apparel were exhibited to more than 2,000 people. Mrs. Joseph H. Separk, wife of a prominent Gastonia manufacturer, presided as president of the Womans' Club. The festivities, in addition to the fashion shows, included a "cotton ball." Prominent young society women of Gastonia served as models for the dresses, two being shown herewith.

Miss Estelle Jenkins wearing a gown of Durene embroidery at the Gastonia Cotton Festival.

Mrs. Raleigh Armstrong wearing a Durene sports costume at the Gastonia Cotton Festival.

As the YEARS Roll By
ARGUTO Rolls On
1890
1931
1932
1933
"Smoother than Grease"
20 years without a drink–
"Outwears the Best Bronze Metal"
"ARGUTO Bushings have Outlasted 7 Bronze Bushings in the same place . . . very severe Service."
unsolicited testimonial
20 years without a drink–
ARGUTO OILLESS BEARING CO.
WAYNE JUNCTION PHILADELPHIA

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

Clark P. Pond was recently appointed vice-president of engineering and sales of the Truscon Steel Company. He was formerly connected in a similar capacity with the David Lupton's Sons Company. He is widely known in the building field, having originated the top-hung continuous windows, tension operators and projected windows of vertical and horizontal types. His own roof design for improved natural ventilation and lighting is being utilized in many buildings today. With the Truscon company, Mr. Pond is to interest himself largely in problems of engineering and sales of all Truscon products.

Mr. Pond.

E. A. Terrell, of The Terrell Machine Co., Inc., Charlotte, N. C., addressed the students in the textile department of the Georgia School of Technology on March 4th, his subject being, "What of the Future of the Machine Age?"

A Ferguson Macintyre recently resigned as treasurer and general manager of the Fitzgerald (Ga.) Cotton Mills. **J. H. Mayes**, president and superintendent of the Cochran (Ga.) Cotton Mills Co., will also act as manager and superintendent of the Fitzgerald mills.

William P. Saunders recently assumed his new duties as manager of the Pinehurst Silk Mills, Hemp, N. C. He resigned the position as assistant superintendent of the Aurora Mills, Burlington, N. C., to accept the position in Pinehurst.

H. W. Ormand, who has been associated with the Union Bleachery, Greenville, S. C., for the past 12 years, recently resigned to accept the position of superintendent of the Thomaston (Ga.) Bleachery. He succeeds **T. C. Perry** who is to become associated with the Sand Spring Bleachery in Oklahoma.

James I. Pritchett, Sr., formerly vice-president of Riverside & Dan River Cotton Mills, Inc., Danville, Va., has been elected president and treasurer of the organization. He was elected by the company's board of directors on February 27. **Malcolm K. Harris**, attorney for the mills, was elected assistant president. Mr. Pritchett, who has been senior vice-president of the Riverside & Dan River Cotton Mills for a number of years, succeeds the late H. R. Fitzgerald.

R. G. Laney, of Monroe, N. C., has taken a position with Charles Mill Co., Red Springs, N. C.

J. C. Harris, Jr., who until recently has been with the Union Bleachery in New York, is now with the same organization in Greenville, S. C., where he is superintendent of the plant.

C. G. White is now superintendent of the Ora Cotton Mill Co., Shelby, N. C.

E. Zollinger has succeeded S. A. Lovelace as superintendent of the Pinehurst Silk Mills, Hemp, N. C. The latter recently resigned to accept a position with the silk and rayon department of the Dunean Mills, Greenville, S. C.

J. L. Barnwell has been made superintendent of the Volunteer Knitting Mills, Athens, Ala. Prior to his promotion, he was head of the carding department.

H. T. Godfrey, of Rockingham, N. C., is now overseer of spinning at the Golden Belt Manufacturing Co., Durham, N. C.

Alexander Long, Jr., recently resigned his position as assistant treasurer of the Arcade Cotton Mills, Rock Hill, S. C., to enter another line of business in Rock Hill.

Robert H. Gaddy was recently made superintendent of the Magnet Mills, Inc., Clinton, Tenn. Prior to his promotion, Mr. Gaddy had been in charge of the full-fashioned knitting department. He received his early training under his father, C. W. Gaddy, who is manager and superintendent of the knitting department of the Wiscassett Mills Co., Albemarle, N. C.

George H. Rogers, sales manager of the Charles Cooper Co., Inc. Bennington, Vt., died on February 11. He leaves behind him a splendid record and a large host of friends.

G. C. Cooper has been appointed manager of the Philadelphia office of the Union Special Machine Company. His new position is an advancement from assistant manager to which he was appointed in 1926.

Paul Seydel, of Seydel-Woolley Company, Atlanta, Ga., was recently elected president of the Georgia section of the American Chemical Society. This compliment was paid to Mr. Seydel during the recent meeting of the society in Atlanta, at which time over fifteen hundred scientists from all over the country met to discuss world progress made in chemical science.

Mr. Seydel.

E. A. Rusden, president of the Textile Finishing Machinery Co., died in Baltimore during the middle of February. He was 72 years of age at the time of his death, and his life had been one filled with concentrated effort and achievement. It is with deep regret that the passing of such men is witnessed.

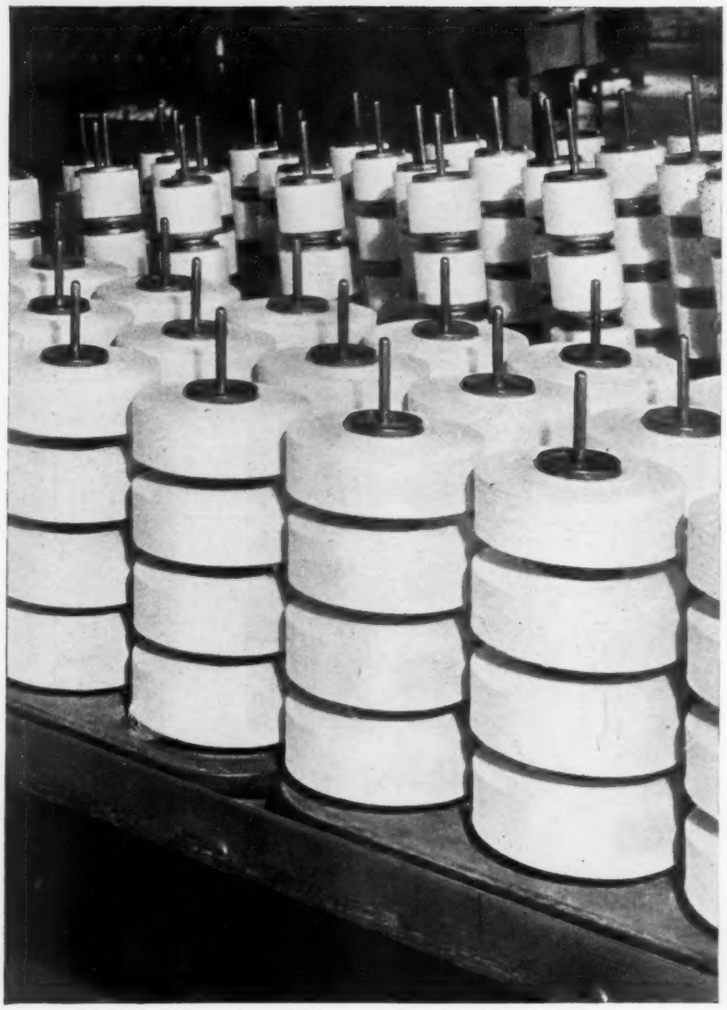
R. H. Smith recently resigned his position as overseer of dyeing at the Durham Hosiery Mills to assume charge of dyeing of the Melrose Hosiery Mills at High Point, N. C.

William L. Dewart, an efficiency engineer with the United States Finishing Co., Providence, R. I., for the past 12 years, has been transferred to the company's plant at Hartsville, S. C.

L. A. Branum, formerly overseer of dyeing at the Stonecutter Mills Co., Spindale, N. C., recently accepted a similar position with the Lad Lassie plant of the Gossett Mills, Anderson, S. C.

J. S. Polk was recently promoted from the position of second hand of weaving to the position of overseer of the cloth room at the Manetta Mills, Lando, S. C. He succeeded W. H. Ferguson, who recently resigned.

Arthur S. Jones, who has been assistant treasurer for some time of the Southern Chemical Cotton Co., Chattanooga, Tenn., has been promoted to treasurer, which position was formerly held by **W. D. Munson**, vice-president and general manager.

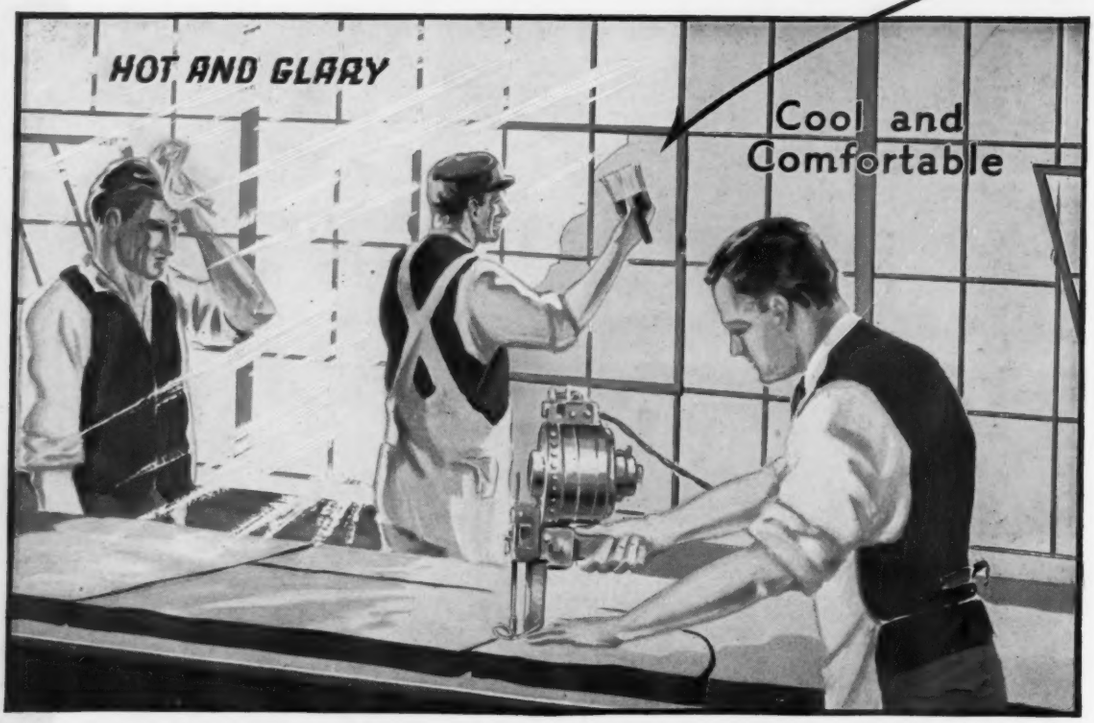


THE REASON WHY

Barber-Colman Spooling and Warping IS THE BEST

● Illustrated above are cheeses on a transfer table—full cheeses from the Spooler on the near side, empty cheeses from the Warper beyond them. These cheeses are characteristic of the Automatic Spooler, which is the heart of the Barber-Colman method. Tests show that it is on the Spooler that the main work is done which lowers costs, makes better warps, reduces loom stops, keeps elasticity in the yarn, makes all knots weaver's knots, eliminates kinks and gouts, fosters uniformity and hence better cloth. The Warper is important, but secondary. High speed in warping is economical, but not essential. It is the *spooling* that really counts. Use the Automatic Spooler and High Speed Warper *combined* for best results. Manufactured by BARBER-COLMAN COMPANY, Rockford, Illinois; Branch offices at Framingham, Mass. and Greenville, S. C.

Merely Coating Your glass with "*No-Glare*"



1. Banishes Glare and Reduces Heat 10° to 15° while Admitting 94% of Light . . . . .

SKYCO No-Glare is a sky-blue liquid that you paint or spray on the glass of your windows and skylights. The resulting film of No-Glare FILTERS the intense glaring sunlight, letting in 94% of the light but rejecting *all* of the tiring glare and 15° of the heat (actual thermometer tests). Goes on *outside of glass*—yet rain or weather conditions do not affect SKYCO No-Glare. Neither will it rub or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

2. Saves you the Cost of Expensive Shade Equipment . . . . . .

Modern mechanical window shade equipment costs a lot of money these days—both for installation and upkeep (repairs and replacements). All this heavy expense can be avoided by simply coating your glass with SKYCO No-Glare. It saves its slight cost many times over in one season.

A single gallon ($3.50) covers from 700 to 800 square feet of glass. One application lasts throughout sun-glare season. Absolutely guaranteed. Used by textile mills everywhere. Sold by mill supply houses.

Use our convenient trial offer . . . . .
Order a gallon today at $3.50 and try it on a "glary" window.

THE SKYBRYTE COMPANY, 1919 E. 19th St., Cleveland, O.

Reduces Heat 10° to 15°—Yet 94% of Light Maintained

SKYCO NoGlare

Gives a Cool Diffused Light that is Restful

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

That Man Hasn't Been Born Yet!

THIS article was written by Old-Timer after reviewing the responses to his appeal in the February issue of COTTON. In it he refers to his first article which was published under this heading in our March 1922 issue. The title of that article was "Would I Hire Myself for My Job?", and we repeat again here, as we have done on several previous occasions, that this is one of the best articles he has turned out in nine years of continuous writing. The fundamental thought underlying that article has cropped out persistently in practically everything else he has said. . . . . .

THAT'S what a fellow gets by trying to be nice. OLD-TIMER sure thought he was going to get a lot of thanks for doing his friend a favor. In fact, it looked so darned easy it did not look like a favor at all.

But Holy Smoke! how I did put my foot in it, and I suppose I have made some enemies instead of friends by trying to do a fellow a good turn.

I have long ago found out that you make more enemies than real honest-to-goodness friends by lending a fellow money, and I suppose that same reasoning applies in some ways to most other favors, good turns, etc., you try to do for your friends.

To get back to our knitting, or the subject, or something we were to discuss: When it was pointed out that a certain firm, or firms, would be very much pleased if they could find a certain type of man, the requirements looked so simple that it sounded like a joke. Well, it is a joke, but a very serious one; a joke that every man, be he cotton mill overseer or superintendent, engineer, buyer, lawyer, preacher or any man in any vocation who is working for a salary, would do well to adopt as his constant slogan in his everyday work.

By using the word joke, I do not mean that those firms were not looking for the men we mentioned in February, but when we began to analyze the simple qualifications specified—"Run the job like it belonged to him"—well, the deeper we got into it and the more we studied the subject, the easier it was to find thousands of simple little questions you can put to a man and prove that he does not, nor never has, run the job like it belonged to him.

One man wrote in to say that we were "all wet", because he knew several men who went broke because they owned the job and ran it like it belonged to them. Well, he did not get the thought we were driving at. If he would only ask himself the question for one day, he would see how impossible it would be for him to qualify.

I hope my readers remember the article on "human nature" and the many other articles which have bordered more or less on the same subject. Human nature, that seemingly indescribable thing, yet that very simple thing when you look it squarely in the face with a little common "horse sense".

I wonder why that saying "horse sense" anyway? Has a horse really got sense, sense that it would be well for a human being to have? It certainly does seem so sometimes, when you come in contact with the actions of some men; men who are really successful; men who have so much sense in some particular line that it makes a success of them. Just why a man's sense should be so one-sided or lopsided, or over-balanced, this way, I am not able to even make a suggestion, but I do know that it is a fact.

Oh, the dickens! I am getting all balled up here like a speaker getting away up in "a," so to speak, and then don't know how to get down.

Like a second hand I once had who was having difficulty in explaining something to me, when he finally said: "Confound, I know it but I can't say it." Well I have tried to "say it" to you fellows in every way that I could possibly think of.

"Would I Hire Myself for My Job?" was one of the first efforts. That's been nine years ago, and I am still at it.

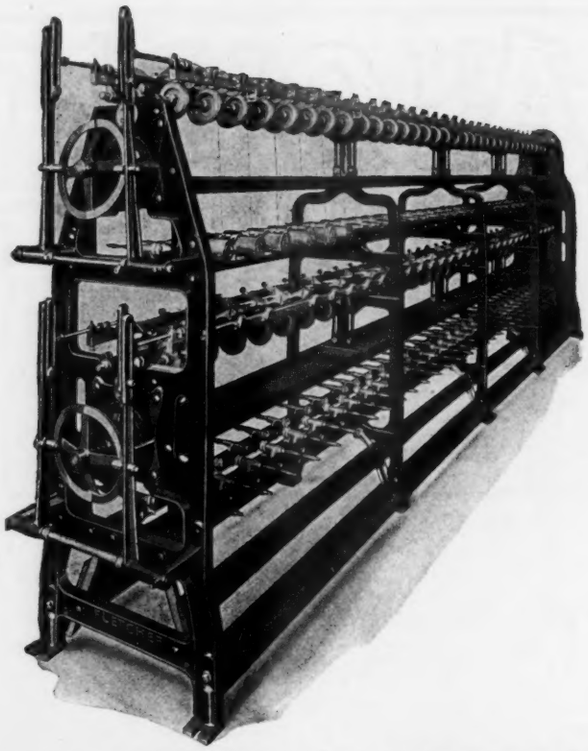
Like the fellow who owned a one-eyed horse; he would slip up on his blind side to catch him. OLD-TIMER is trying to slip up on your blind side, brother, to get a message to you that will make you a bigger man; a message that will put dollars in your pockets

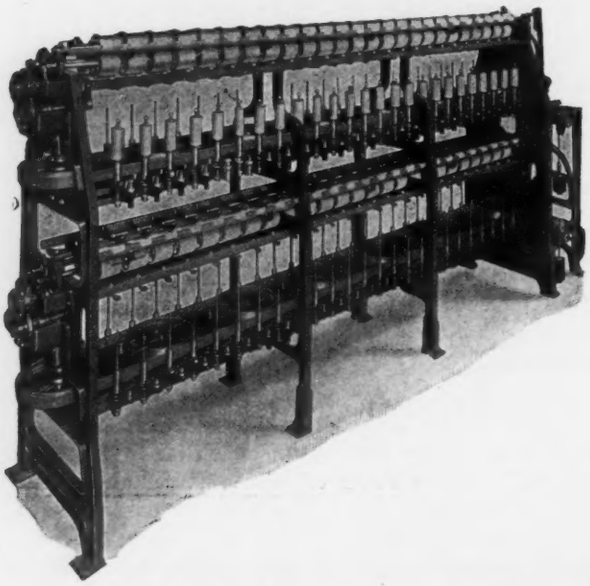
THREE FLETCHER THROWING MACHINES THAT MEET EVERY REQUIREMENT OF MODERN PRODUCTION

. . .

THE REDRAW MACHINE

Filling a long-felt want for an improved double deck redraw or back winder, this machine embodies features that set new standards of economical production.





THE MODEL 30 TWISTER

Several new improvements increase this machine's leadership in its field. A steady drive, unvarying spindle speed, and individual traverse adjustment insure bobbins of unusual uniformity. Write for bulletins on any or all of these machines.

DUPLEX DOUBLER TWISTER

The last word in twisting machines, with advantages of construction and operation that insure accuracy of twist, uniformity of product, and smooth, dependable operation.

SEE THESE REMARKABLE MACHINES AT THE ANNUAL KNITTING ARTS EXHIBITION, PHILADELPHIA, APRIL 13 to 17

FLETCHER

THROWING MACHINERY FOR SILK AND RAYON - - CENTRIFUGAL EXTRACTORS - - NARROW FABRIC LOOMS

FLETCHER WORKS • GLENWOOD AVENUE AND SECOND STREET • PHILADELPHIA

FORMERLY SCHAUM AND UHLINGER - ESTABLISHED 1850

if you will take it to heart and make a conscientious effort to profit by it.

Yes, and I have gone straight at you from the front, with both eyes wide open. I have concentrated for days, weeks and months on a single thought in an effort to get at you from some other angle. I have probably hit below the belt sometimes, or at least my editor intimates that I have, but remember, it is all with but one object, and that is to get you to realize:

That the message is to you, and *you* alone—

That all the effort put forth in preparing the article was done for *you*—

That OLD-TIMER is not a professional writer—

That every message he is giving you is based on years of actual practical experience in a concentrated study of people, of human nature, in association with the high and the low, with honest and dishonest men.

If you will only put your mind in that receptive mood when you read an OLD-TIMER article you will profit by it. Otherwise, it is just reading matter—in one ear and out the other—you've gained nothing and I've lost a lot of sweat.

Now frankly, the most difficult, the most far-reaching, the hardest bill I have ever in all my experience tried to fill, is to find a man who would—

Run the job like it belonged to him.

Many of the letters we received said—

"I have always tried to run my job like it belonged to me," and in every case I know there are a thousand questions I could ask that man, any one of which would prove to him plainly that he was mistaken, yes, sadly mistaken.

In fact, that man has never been born yet, who has filled those simple qualifications. Of course there are men who come much nearer to that ideal than others, but if you feel that I have made too broad a statement I only ask you to write the eight words down in your note-book and take it with you tomorrow when you go to work.

Every time you do anything, every time you answer an inquiry from your boss; and every time you give an order, just read the eight words and you will soon see what they mean. You will soon realize the deep meaning of that question: "Did I do that the same as I would have done it if the job had belonged to me?"

Guess I'll have to tell you a little joke. As soon as Jim got his February COTTON and read that article, here he came—

Hello! OLD-TIMER. *How's business?*

Never mind about business, JIM. Do you think you can qualify for that position?

What position, OLD-TIMER?

The one you came over here to talk about, of course. The one you have just read about in February COTTON. The one that you think there is some catch or joke in.

Guess you got my number, OLD-TIMER, *but, honest now, is there anything to that? Are you actually trying to find a man for somebody?*

Sure I am.

Well, you have been a lot of help to me, and I give you credit for every promotion I have had. I suppose that is one of those big jobs that you consider I am not big enough to run, but I sure would like to talk it over with you. Where is the job, anyway, and about how much will it pay?

Sorry I can't answer your first question at all, JIM, because I am pledged to secrecy, and I can only partially answer your second question. The salary would be more than double what you are making.

Whoopee! Lead me to it, OLD-TIMER. *But really, that qualification business was some kind of a joke, wasn't it? You don't mean that all they want to know about a man is, that he would "run the job like it belonged to him," do you?*

Yes, JIM, that is the sole qualification they require. You can be one-legged, cross-eyed, 70 years old or 30 years old, married or single, or most anything else, if you can come up to that one qualification.

Ah! come on, OLD-TIMER, *quit your kidding and put me wise. What is your game, anyway?*

No game at all, Jim. No joke, have you really given the thing serious thought as to whether you could qualify or not?

What you mean? Would I run the job like it belonged to me? Are you really serious? Now, OLD-TIMER, *you have known me a long time. You taught me how to grind cards; you taught me how to run a loom and you have taught me how to run a mill; you know me probably better than I know myself. You have seen my work under all kinds of conditions—*

Hold on, JIM, you are starting to dream. Suppose you answer my question.

Oh, heck! OLD-TIMER. *You know I have always tried to run my job like it belonged to me.*

Are you sure, JIM? Suppose I ask you just *one* question ,and if you can answer it honestly, I will take you to my friend and let him ask you some more.

O. K. OLD-TIMER, *shoot!*

Very well, JIM, but I must ask you to consider it carefully. You are the one with whom you are most concerned. Get ready, now, and I'll shoot the question at you. Here it is:

Do you act the same when the boss is looking as you do when you know he is out of town?

Hold on! I'll answer for you and all the other fellows:

NO!

IMPORTANT ANNOUNCEMENT!

(Reprinted from March Issue.)

Old-Timer Repeats Attractive Offer to Ambitious Readers.

IN an effort to be of more service to his readers, Old-Timer has secured a limited number of a very attractive and helpful souvenir which portrays the Old-Timer slogan. They will be presented free to those of his readers who will ask for them and who will agree to meet the requirements he has laid down in connection with them.

This offer applies to those readers who are eager to improve themselves, their work and their service to their employers There is no "catch" in this. We know that the slogan will make you a better man, and put dollars in your pocket if you will conscientiously follow it. If you are interested, write to Old-Timer, care of COTTON, Grant Building, Atlanta, and ask for a souvenir of the Old-Timer Club.

Marks of Good Management

THE MOST essential characteristic of management is organization. If management is right its organization is right. No need to go further to find the qualities that make for success.

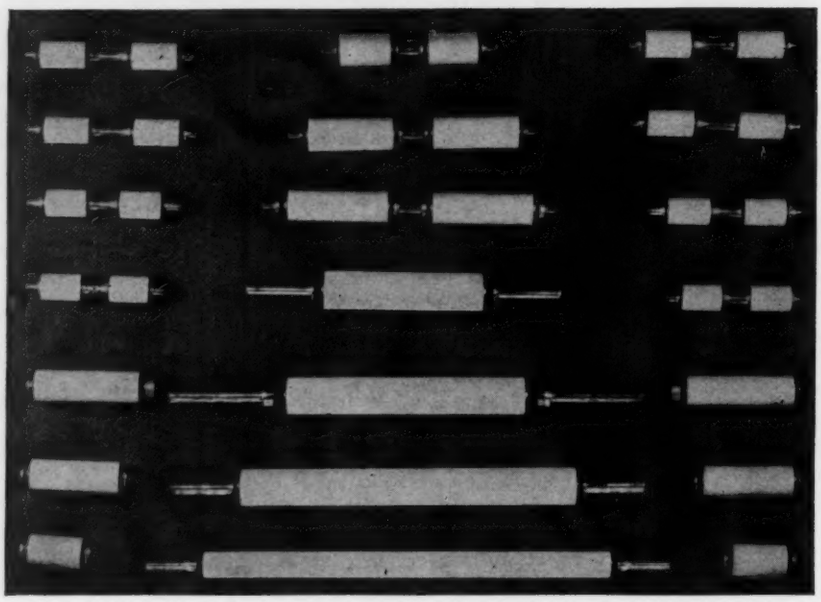
Personality shows on the surface. Spirit and morale can not be hidden. Every detail of business transactions expresses their presence, or their absence.

No greater tragedy in business life than the failure of able, honest and potentially successful men. Modern Accountancy sees these failures often and emphasizes them as quite unnecessary. Success is not to the superman alone. Most often it comes from a right concept of organization and the application of a well-ordered plan. Every day, normal business intelligence discovers, and understands better these truths; and so is achieving more fully the results that mark good management.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

AKRON	CHICAGO	DENVER	HOUSTON	LOS ANGELES	NEW YORK	RICHMOND	TAMPA
ATLANTA	CINCINNATI	DETROIT	HUNTINGTON, W.VA.	LOUISVILLE	OMAHA	ROCHESTER	TOLEDO
BALTIMORE	CLEVELAND	ERIE	INDIANAPOLIS	MEMPHIS	PHILADELPHIA	ST. LOUIS	TULSA
BIRMINGHAM	COLUMBUS	FORT WAYNE	JACKSON, MISS.	MIAMI	PITTSBURGH	ST. PAUL	WASHINGTON
BOSTON	DALLAS	FORT WORTH	KALAMAZOO	MILWAUKEE	PORTLAND, ME.	SAN ANTONIO	WHEELING
BUFFALO	DAVENPORT	GRAND RAPIDS	KANSAS CITY	MINNEAPOLIS	PROVIDENCE	SAN FRANCISCO	WINSTON-SALEM
CANTON	DAYTON	HARTFORD		NEW ORLEANS	READING	SEATTLE	YOUNGSTOWN



Predominating!

Even felt cloths can stand out in their field, as is proven by the unanimous approval of "Philadelphia" throughout the textile industry.

Roller Cloths of the correct cushion and uniformity.

Clearer Cloths with thick strong nap that cannot pull out. Uniform length that clears rolls entirely of short fibre.

Slasher Cloths with enough cushion and porosity to thoroughly force sizing into yarn.

Philadelphia specializes in Stamping Blankets.

Our Southern Sales Manager, Clarence B. Seal, will gladly assist you on felt cloth problems. Address inquiries to Philadelphia.

PHILADELPHIA FELT COMPANY
FRANKFORD, PHILADELPHIA, PA.

Philadelphia *Felt Cloths*

PROVEN IN SERVICE

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Questions on Cockled Yarn.

EDITOR COTTON:

I would like to submit the following questions to your readers for their consideration, and I hope that I may receive answers from some of them:

(1) What actually takes place when cockled yarn is made on a spinning frame?

(2) Why the little soft lump, without twist, and which will strike out when the least bit of tension is applied to the thread?

I would like for those answering to give a broader answer than the mere statement that the rolls are set too close.

CONTRIBUTOR NO. 4990.

Preventing Warps Sticking to Slasher Cylinders.

Another reader recommends methods of eliminating this objectionable difficulty

EDITOR COTTON:

On page 355 of your February issue I notice "CONTRIBUTOR NO. 4944" wishes some discussion on the causes and remedies of warps sticking to slasher cylinders. I am very glad to give the following suggestions which we have found helpful recently.

In practically all instances of similar trouble it will be found that the lack of grease matter causes warps to stick to the cylinder. Most likely this trouble can be eliminated by the addition of a little more tallow or compound to the size mixture. Precaution should be exercised to prevent soft warps by not adding too much grease matter and the mill man can determine this point by gradually adding this grease matter until the trouble is eliminated.

I would suggest that the size kettle, all connecting pipes and size box be thoroughly clean and precaution taken in mixing all of the ingredients to be used in the size. A good method of doing this would be to let approximately the correct amount of water into the cooking kettle and add the starch very slowly and agitate vigorously for 10 or 15 minutes if time permits; then turn on the steam and bring to a lukewarm solution and add the tallow and gum or whatever grease matter is used, and then brings the solution up to a boil and cook for the necessary time required, depending upon whether it is a thick or a thin boiling starch. After the solution has been thoroughly cooked, add either lukewarm or hot water to bring the amount up to the required volume of finished size.

Another very satisfactory manner in handling would be to cook the starch for about 30 minutes under vigorous boiling and then add the grease matter, as in a great many instances near volatile matter will escape by prolonged boiling.

Summing up this discussion, I believe the trouble of warps sticking to slasher cylinders can be prevented by the proper amount of grease being added, and, if after careful experimentation the mill man still finds that his trouble is not eliminated, he should have a competent chemist analyze the various ingredients which he uses as some of these could cause trouble if there is any laxness in his plant.

CONTRIBUTOR NO. 4965.

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

"Wash" Again Discusses Card Drafts.

Read this and tell us who is correct—"Wash" or "K. Y."?

EDITOR COTTON:

I do not wish it to appear that I am continually wanting to draw our good friend, "K. Y. (MASS.)" into an argument, but after reading his article "Answers 'WASH' on Card Drafts," which appeared in the January, 1931, issue, and in which he answered several questions I had asked in my article in the October, 1930, issue, I cannot refrain from again taking my pen in hand in an effort to show him where he is all "wet."

The first question I asked was, From a point at the bite of the feed roll and the feed plate to the coiler calender roll, which fibers will receive the most severe treatment, the ones making the journey in a short time, or those requiring longer? "K. Y." had the following to say about it: "I will say that from a point at the bite of the feed roll to the coiler rolls the fibers all get the same amount of severe treatment, regardless of the amount of draft, with, of course, the same number of pounds per hour of cotton being fed to the licker-in."

This statement was made by a man who claims he knows the best drafts. According to him, there is no such thing as a heavy feed. A heavy feed means a heavy sheet of lap, and a light feed means a light sheet of lap to any practical man. If "K. Y." were a practical man he would have considered the speed of the feed roll which is the most vital part of the question. All practical men know that the proper surface ve-

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locity speeds of the cotton card are 1000 feet per minute for the licker-in and 2200 feet per minute for the cylinder. Therefore the amount of fibers presented to the licker-in is determined by the weight of the sheet of lap, by the speed of the feed roll and by the speed of the doffer. In case of a short draft, which means a fast speed on the feed roll, the fibers do not receive the same severe treatment for they pass over the nose of the feed plate more rapidly, while in case of a long draft it means a slow speeded feed roll and the fibers hanging over the nose of the feed plate are at the mercy of the combing action of the licker-in for a longer period of time. Of course, the longer the fibers the longer the dwell at this point.

On account of the foregoing, the machinery builders have adopted the following rule, which holds good for all classes of work: The more rapidly work can be run on the card, consistent with the quality or grade of work required, the stronger will be the yarn.

In my second question I asked if it were possible to extract foreign matter more easily from a light bulk of cotton than from a heavy one. "K. Y." said, "In this case I find from actual tests that I get more foreign matter out of my heavy sheet of cotton, but of course my heavy sheet of cotton is being fed slower than a light lap would be fed."

We all must agree that a heavy sheet of lap will raise the feed roll from the plate, and the more we raise the feed roll from the feed plate, the less the grip it will have on the fibers. This combined with the excessive number of fibers under its action will cause the licker-in to pluck the stock in clusters. This is termed plucking and is very pronounced where a lap has run out and the overlapping of the new lap with the old causes a thick place to pass the licker-in. What happens when a lap runs out should be sufficient to prove that in no case is a heavy sheet of lap desired.

In answer to my question, Which gives the best gradual draft, a heavy or light sheet of lap and why? "K. Y." said, "The heavy lap gives me the best gradual draft, because as stated before, I can make a better lap and also have more fibers to the cross section at every inch of my lap to help eliminate some of the stretch between the lap rolls and feed rolls." In all of my mill experience I have never heard of stretch between the lap roll and feed roll.

When the points to the inch on clothing teeth or needles are considered, the draft must be so arranged that the fibers fed will not be greater than the points and needles brought to action by the surface velocity.

Again, it must be considered that in order to get a gradual draft the fibers must be held firmly at all times. In other words, if more fibers are presented to the licker-in teeth than can be properly handled by them, not only is the gradual draft destroyed, but plucking is caused at this point which destroys the cleaning efficiency of the card.

"K. Y." answered my next question, Does the length of the draft on the card affect the speed of the licker-in? by saying, "I do not believe it does." Any practical man will tell you that in the summer months with an average draft, the speed of the licker-in will lag. Therefore, if we increase the work on the licker-

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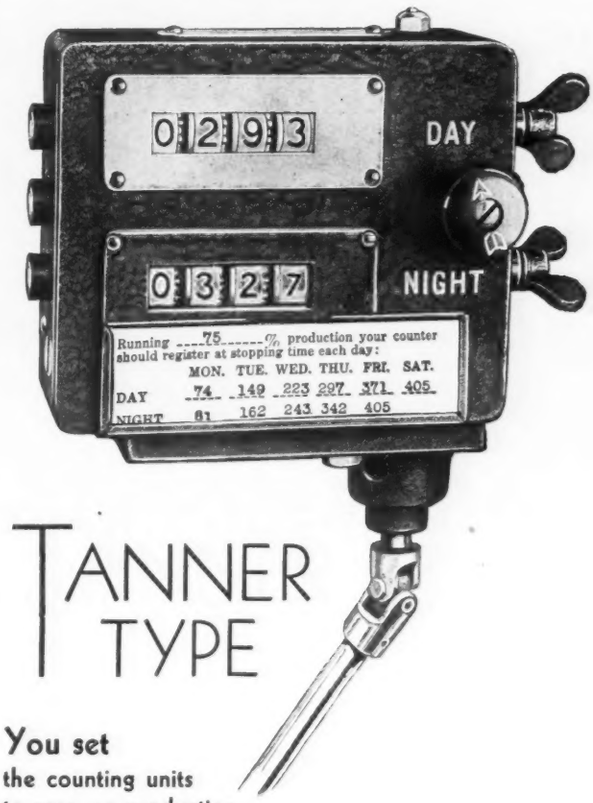
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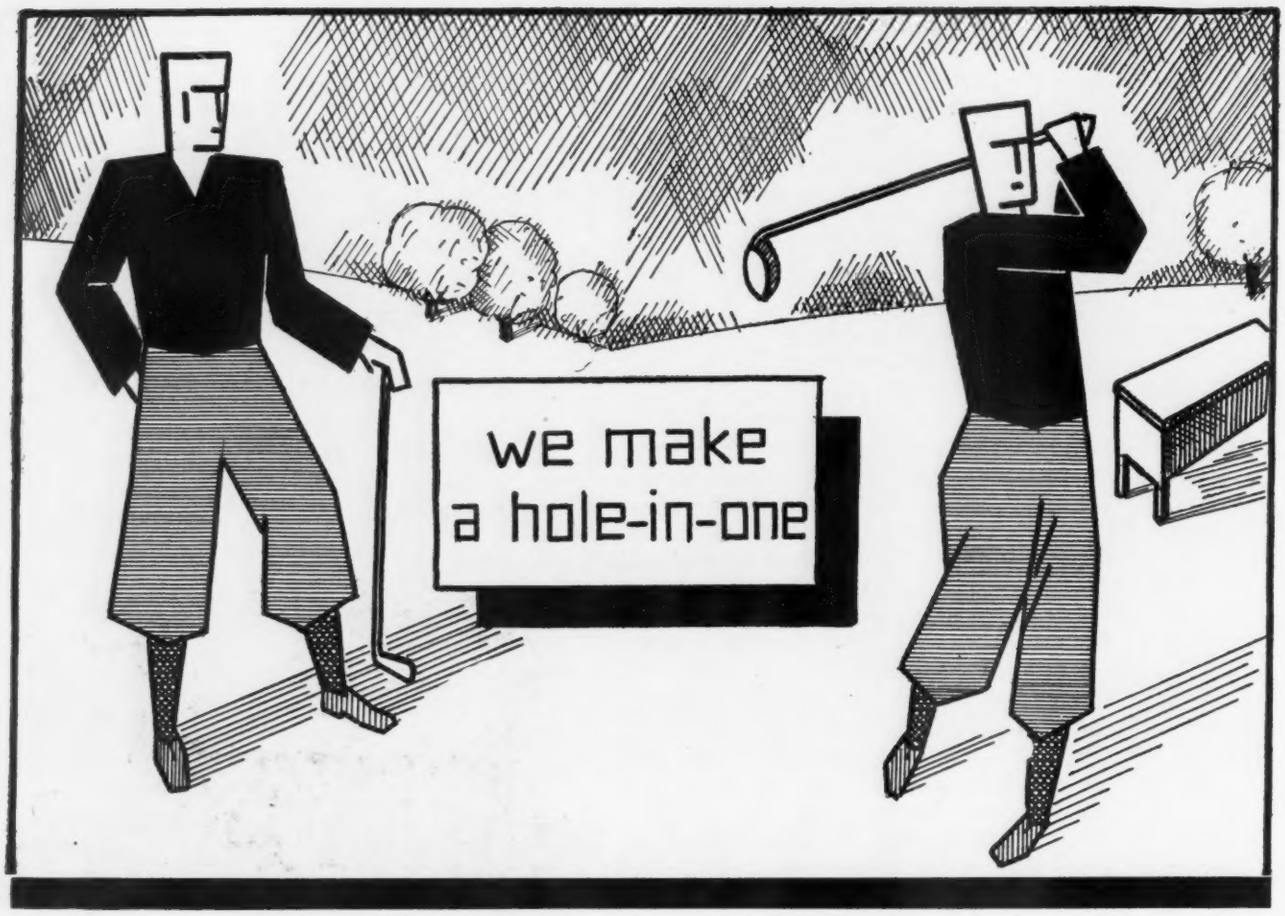

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in by presenting a heavy lap, there can be no argument on this point. I wonder if "K. Y." would admit that the speed of the licker-in is not affected when a lap is allowed to run out.

My fifth question, Are short drafts better on the machine preceding and succeeding the card? was answered by "K. Y." as follows: "I find short drafts better on the machine preceding and succeeding the card." This answer shows that "K. Y." fell into the trap I had set for him. I asked the question for the express purpose of finding out whether he understood the principle of carding machinery.

I would now like to ask the question, What is the difference in principle between a carding beater and feed roll, and the licker-in and feed roll? See the point? If a short draft is good for the picker, why is this not so on the card? We adopt a short draft on a picker in order to give the beater freedom to act on all fibers presented, and time to extract the foreign matter. Can any practical man criticize such reasoning?

My sixth question read, If a heavy lap and light sliver will make a stronger roving and yarn, where does the source of the increased strength come from? "K. Y." said, "The source of the increased strength of the yarn is obtained from having less foreign matter in it." According to this, in case of a high grade clean stock, the long draft will not increase the strength of the yarn. The strength of the yarn is due to the amount of the twist in the individual fibers of which it is composed. Therefore, the longer the fibers are under any combing action, the more they lose their convolutions. Give me a draft in the neighborhood of 105 with humidifiers and I am all set.

"K. Y." wanted to know how I figure a card running on a long draft will rob the cotton of its waxy walls any more than a card running on a short draft, when all speeds are alike. It seems to me that this proves he is not a thinker. He admits that he favors short drafts in the picker room, which means a slow revolving feed roll. As on the card, if you decrease the speed of the feed roll on any picker you increase the blows per inch, and when the speed of the feed roll of the card is decreased the fibers are exposed to the action of the licker-in for a longer period of time, and in both cases the fibers are injured.

"K. Y." is all wrong when he claims that a stronger yarn was made with double carding. However, it is a safe bet that he knows as much about double carding as he does about the modern card. Of course we all know that combed yarns are stronger than carded yarns because more undesirable fibers are taken out by the combing action. The same argument holds good with double carding.

It doesn't seem to me that "K. Y." has defended the long card draft as ably as did some of his predecessors whom we don't hear from any more. At least, *they* never found any draft between the lap and the feed roll.

In closing for this time, I want your readers to make the following test: Make two laps from the same bale of cotton. Set one card as follows: Feed plate to licker-in, almost to touch; licker-in to cylinder, 7; flats to cylinder, 8; doffer to cylinder, 5. Set another card: Feed plate to licker-in, 10; licker-in to cylinder,

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12; flats to cylinder, 12; doffer to cylinder, 7. Of course, I don't approve of the latter settings, for the reason they will not make as clean a sliver; but they will make a much stronger yarn. It is the law of compensation.

"K. Y." suggests that readers make a test on long and short card drafts to determine whether he or the writer is correct. I would remind the readers that in order to make their drafts seem much longer, when figuring the draft, please do not forget that draft between the lap and feed roll, for, according to "K. Y." it is most important.

WASH (R. I.)

Asks for Card Settings, Making 20's Yarn.

Also wants some discussion as to "blows per inch" on the pickers. Give your ideas.

EDITOR COTTON:

I would like to see some discussion in your columns as to the best card settings on 20s carded yarn made from 7/8-inch Middling cotton, with first consideration to breaking strength and second to cleanliness of the yarn. We are carding 120 pounds in 10 hours, and draft 100 on the card. We now use the following settings and I would be glad to have recommendations as to any changes, with reasons why.

Feed plate to licker-in	12
Mote knives, top	10
Mote knives, bottom	7
Licker-in to cylinder	10
Back plate to cylinder, top	17
Back plate to cylinder, bottom	34
Flats to cylinder, back	12
Flats to cylinder, center	10
Flats to cylinder, front	10
Front plate to cylinder, top	34
Front plate to cylinder bottom	27
Doffer to cylinder	10
Doffer comb to doffer	34
Licker-in screen	17
Cylinder screen, back	34
Cylinder screen, center	34
Cylinder screen, front	3/16"

I would also like to have some expressions as to the correct blows per inch on two-process pickers on this same work.

CONTRIBUTOR No. 4967.

Tells Which Way Laps Should Point.

This man says the lap of the leather rolls on a spinning frame should point to the front.

EDITOR COTTON:

The very interesting question of which way the leather top rolls should be put in a spinning frame, with the point, or overlapping of the lap, pointing toward the front or toward the back when the lap is on top, was brought up by "L. W. N. (N. C.)" in a recent issue.

The point has been brought out that the steel roller drives the top leather roller, and the tendency is to separate the lap when the rolls are put in as the practice is now. The theory would seem to bear out this fact, but like a lot of other theories, this does not work out in practice. If "L. W. N." has any doubts as to which is the correct way, I would suggest that he try some rolls put in the frame with the

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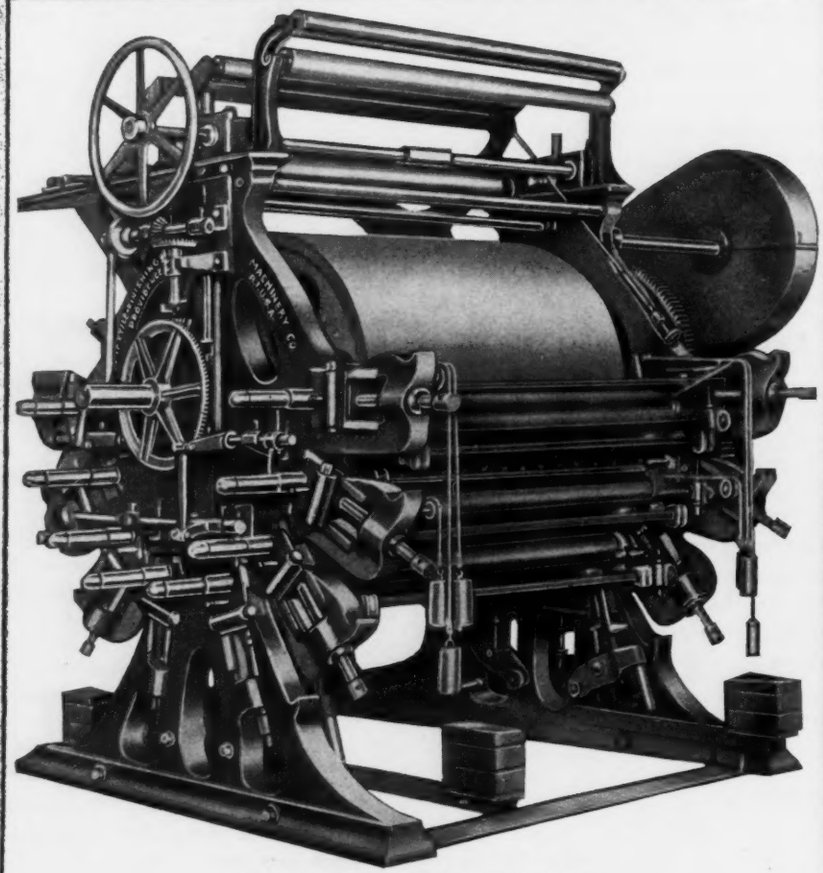

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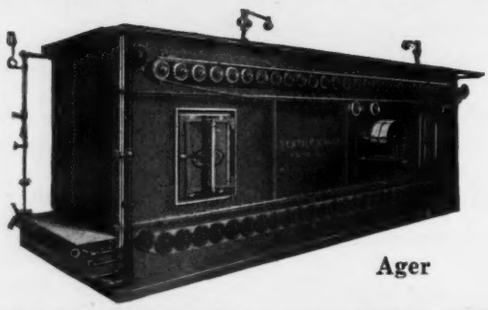

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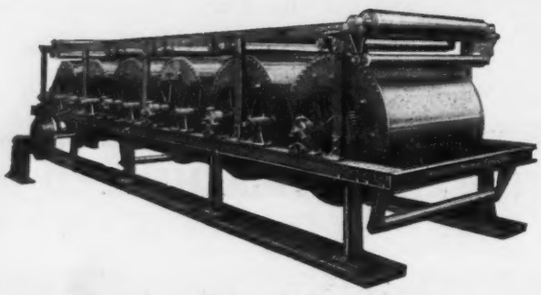

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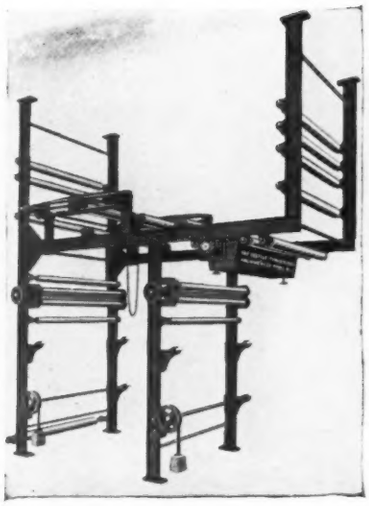

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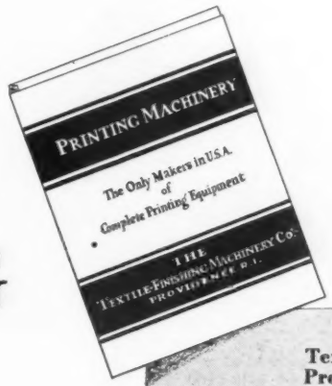
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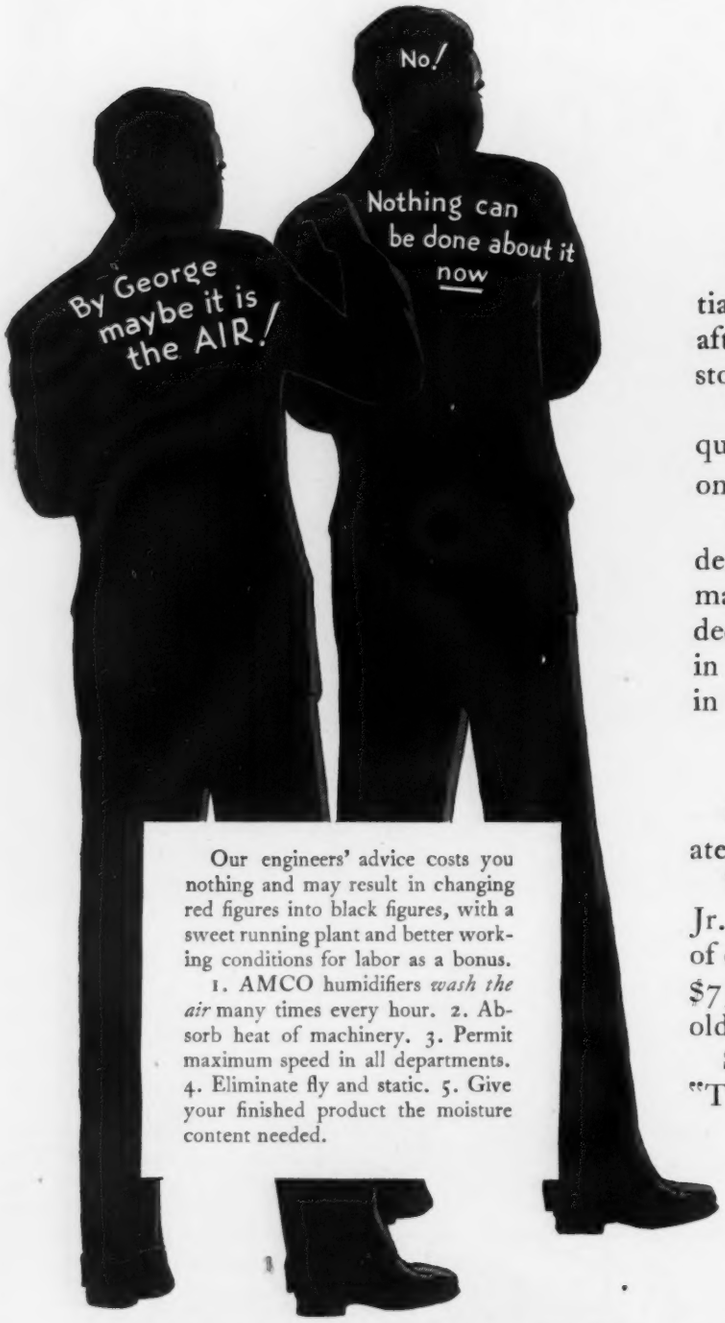

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laps pointing to the back, and he will see that this theory does not work out in practice. The steel roller will not have the tendency to separate the lap in the driving of the leather roller as much as the continual rubbing of the lap against the clearer board would have if the lap was pointing to the back.

In my opinion, the correct way to put the roller in the frame is with the lap pointing to the front.

W. C. H. (GA.)

Should You "Check Up" on Instructions Given?

A further discussion on whether a second hand should "take it for granted" that his orders are carried out? What do you think?

EDITOR COTTON:

I have read with considerable interest the comments of "J. R. (GA.)," on page 365 of the February issue, with regard to my series of five articles on the subject of the second hand and his duties. He was interested enough to take exception to a statement of mine, published in the November, 1930, installment, beginning on page 66, and I should like to present an elaboration of my thoughts in connection with it. For the convenience of readers, I am going to re-quote here the paragraph from my November article which "J. R." discussed. I said:

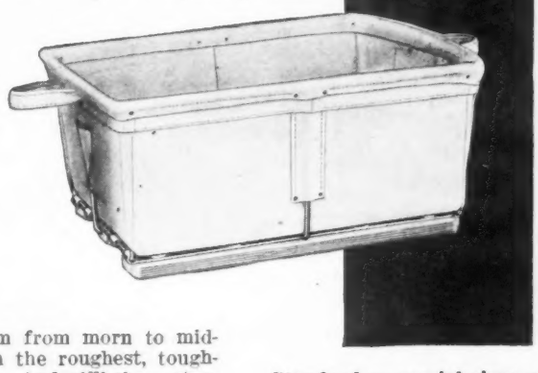
"There are some second hands, and overseers too, who seem to take for granted that just because they have given an order for something to be done that they have relieved themselves of all further responsibility. When the second hand gives instructions for something to be done, he should without fail, check up to see whether his orders have been carried out. Try it, if you are not already doing so, and see if your men do not have more respect for your orders. Never take anything for granted."

It is with the last sentence—"Never take anything for granted"—that "J. R." disagrees largely.

Now, in the first place, I must admit that his letter is gratifying in that it proves that at least one man took the time to read my articles. Again, I do not expect every man to agree with my views, and I am always glad to have him express his opinions as these will undoubtedly be of benefit to me.

When a man expresses himself in any way there is always the danger of being misunderstood. While I am still ready to stand behind the statement that our friend is criticizing, it is possible that I did not make myself perfectly clear. I will go a step further and say that when an employee makes a complaint that will involve another person or another department the second hand or the overseer should check up personally to be sure that the complaint is justified before calling the other person or the other department. This should not be considered as a reflection on the honesty or integrity of the employee making the complaint, but he might be mistaken. Let me cite an example: The overseer of a beaming department of which I was second hand received a phone call from the boss weaver that a certain very heavy fabric was run on beams with the heads run up when they should have been run out to the full width of the beam in spite of the fact

Pile them high, pile them heavy . . .



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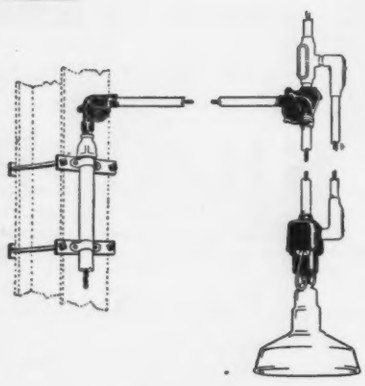

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HANGER

that the fabric was much narrower than the beam. I was sent to investigate and went to the boss weaver's office. He referred me to the second hand who had made the complaint to him. The second hand went with me to the loom and we found everything all right. It developed that the cloth had run bad and the weaver reported to the fixer that it was running bad because the heads of the beam were run up. Without checking up the fixer made the same complaint to the second hand. He in turn told the overseer, yet he had not gone to the loom in question to investigate. The overseer, feeling that the second hand should know that he was right before making a complaint (and he should have known), called the beaming department without ascertaining that the complaint was justified. An unnecessary complaint could have been avoided and a rather embarrassing situation averted had someone taken the trouble to check up before accusing the other department of an error.

I received orders from the overseer to prepare about ten pounds of sewing twine for the superintendent. He gave me specific orders to take or send the yarn to the office manager and to tell him that the superintendent would tell him just what to do with the yarn. As I had to attend a meeting of the Community Chest Committee, of which I was a member, I, in turn, gave the instructions about the yarn to one of the section men, asking him to look after it for me, and suggested that one of the yarn men could take it to the office for him. Later in checking up I found that the section man had not weighed the yarn, but had only guessed at the weight. He did not tell the yarn man just how to handle the yarn at the office, resulting in some confusion. Then again he had not checked up to see whether the instructions that he had given the yarn man had been carried out. I took occasion to impress upon him the importance of carrying out orders. I told him that as I saw it three elements should enter into the giving of every order, (1) The order should be reasonable, (2) Be sure that your order has been understood clearly, (3) A check up to see that the order has been executed.

Now it is this third point on which our friend "J. R. (GA.)" has disagreed with me. Most of the time the employee need never know that you have checked up on him, for in the majority of cases the visible results will speak for themselves. But there is always the chance that he has misunderstood you in spite of your efforts to make yourself plain. If you suspect that such might be the case you can approach him the second time and restate your order; this should bring results. In some instances it is possible to have the employee report to you when an order has been executed, for illustration suppose filling is short and you want to know the condition of the filling for certain looms and you want to be sure that these looms run, you could tell the filling hauler to see that these looms have plenty of filling and to report to you every hour the condition of the filling.

Again you might have given orders for certain work to be done and later when you thought plenty of time had been allowed for its completion you could approach the employee in question and in a friendly way you could ask him how he came out with the job, or

How does a cat see . . . *in the dark?*

The probable optical principle by which a cat sees is a principle which helps to explain why human eyes see more sharply and clearly by Cooper Hewitt light.

All scientific observations of the cat so far made, tend to prove that it is totally color-blind. If this is so, it means that the cat's eye filters out all the rainbow colors of which "white" light is composed, except the particular color (or restricted group of spectral light rays) by which the cat sees. And that the cat sees quickly and sharply—even small objects in the dark—though not, of course, in complete absence of light—is common knowledge based on common observation.

Under Cooper Hewitt light, your eyes see more sharply and clearly because it is composed *almost wholly* of the cool yellow-green rays—a restricted group of spectral rays by which, science says, human eyes see best. The reason is this:

Your eyes cannot bring all the colors which make up "white" light to a focus on the retina. If focused for a color at one end of the spectrum, colors at the other end would be out of focus. So, the fewer the colors of which a light is made, the less will be the confusion of out-of-focus colors when light enters the eye and registers in images on the retina. Nearly of the same wavelength, the yellow-green rays of Cooper Hewitt light focus on the retina virtually as one.

For full information about Cooper Hewitt light write for booklet, "Why Cooper Hewitt Light is Better than Daylight." General Electric Vapor Lamp Company, Hoboken, N. J.

GENERAL ELECTRIC
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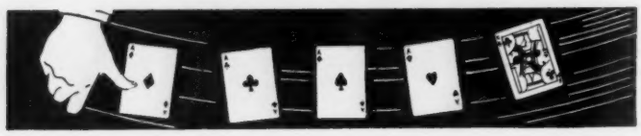
Science says the cool yellow and green rays of the spectrum are the rays by which we see best. The spectrum of Cooper Hewitt light is composed of over 90% yellow-green rays. This accounts for its remarkable seeing power and explains why workers in industrial plants, for which it is exclusively intended, say that Cooper Hewitt light is "Better than Daylight."

Blue and violet, which have comparatively little seeing power, comprise less than 10% of Cooper Hewitt light.

(See next page)

Truth is never afraid to lay all its cards on the table



Increasingly, manufacturers realize that the most convincing word for any product comes from the product itself. When that is so, they are eager to put that product into the prospective buyer's hands, without obligation to buy, and let it speak for itself.

♦

The General Electric Vapor Lamp Company has followed this policy with Cooper Hewitt light for years. And our knowledge, based on experience, that Cooper Hewitt light decreases spoilage, increases production and promotes factory efficiency generally, is invariably corroborated by a trial installation. A few Cooper Hewitt lamps, given a few weeks' try-out in an industrial plant, are followed almost always by a complete equipment of Cooper Hewitts. For the advantages of this soft, cool, glareless light are instantly obvious, creating a desire for similarly improved seeing conditions throughout a factory.

♣

Take one example: back in 1927 one important manufacturer of airplane and automotive parts put in four Cooper Hewitt lamps for a 30-day trial. After only a few days he realized their unusual advantages and ordered 62 more! By early 1928 he had built an addition to his factory and installed 98 more Cooper Hewitts! Then followed, later in the same year, an order for 230 additional lamps! Today there are 394 Cooper Hewitt mercury-vapor lamps in this factory, making vision sharp and clear for every worker and inspector.

♠

And this factory, mind you, is of the modern, monitor-type roof design. But Cooper Hewitt light is needed to improve the available daylight and to give "better than daylight" illumination 24 hours a day. Cooper Hewitt light is composed almost wholly of the best-seeing light rays known to science and therefore augments and blends perfectly with daylight.

♥

MANY other advantages of Cooper Hewitt illumination are given in a simply written booklet "Why Cooper Hewitt light is better than daylight" which will be sent gladly upon request. General Electric Vapor Lamp Co., 853 Adams Street, Hoboken, N. J.

GENERAL ELECTRIC
VAPOR LAMP COMPANY

(*Formerly Cooper Hewitt Electric Company*)

417 © G. E. V. L. CO., 1930

something like that. Of course I did not mean in my article in question that the second hand or the overseer or even superintendent should assume a supercilious or suspicious air in checking up to see whether his orders have been obeyed, but on the other hand he should do this in a quiet and friendly way, and as I said before most of the time the employee need never know that you have checked up on him.

For the most part I agree with what "J. R. (GA.)" has had to say with regard to the second hand and the other mill officials and I hope that I have cleared up the point in question.

I feel quite flattered that he has pictured me as a superintendent with a college degree, and it is possibly well for me that the rules of the discussion department forbid the disclosure of one's identity. However I would like to tell him that I am only a practical mill man whose education is rather limited.

I wish to thank the editor of COTTON and the readers of the discussion department for bearing with me in this reply to our friend "J. R. (GA.)". It is not my intention to get into a long drawn out argument but I simply wished to clear up a point about which there seemed to be some misunderstanding.

CONTRIBUTOR NO. 4022.

Further Discussion on Eliminating Slug and Black Oil Spots

This man uses compressed air for blowing out his card room bobbins. Other suggestions given.

EDITOR COTTON:

After reading the articles in recent issues on how to eliminate slugs and black oil from getting into the yarn in the spinning room, I felt that I might be able to add a little along this line which would prove helpful to some.

This evil, it seems, is with us to stay, and, as one of your contributors expressed it, it is certainly some fight to keep it under control. I have been waging this warfare for the past fifteen years and the three main problems that have confronted me have been: How to fight, where to fight, and who must fight?

The great general Foch during the World War gave orders to his men to advance in all directions. This was during the Spring of 1918. His soldiers were successful. If we will give the same orders to our men in regard to preventing slugs and oil spots from the card room, I believe we will also be successful.

Some believe that the best idea is to put on extra help, what we generally call bug hunters—that is, girls or boys to walk around over the room breaking out all the black that they can find. I do not like this system. Some others use the premium system. They pay the help so much for the bad places they pick out, etc. I also dislike this method. In the first place, I have never found extra help very efficient. They are content to try to just get by. Then as for the premium system, I believe this system furnishes an opportunity for some to make bad work for others. My idea is to let every employee be responsible for his own bad work. When a man or woman is hired I think they should be hired to make goods as the employer wants them made.

Some seem to think that the greater part of black work, etc., comes from the picker or cards. Some even

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feel that it comes from the bale. However, I am of the belief that most of it comes from the cards and if we use the proper means of cleaning and oiling the cards and pickers I don't believe we will have much black work from them.

A lot of black work is caused by careless brushing down of over-head motors, pulleys, etc. Very often foreign matter falls into the good work when this is being done. This work should be done at night, or rather at some time when the machinery is not running.

At the drawing processes some of the most likely places to make black work are the cleaning and oiling of the rolls, the oiling of the coiler heads and piecing up with soiled hands. Oil should not be used excessively, and where it is used too freely the oilers should have a cloth to wipe away excess oil.

Every Friday when our men are cleaning the drawing backs, if we don't have them pull the cans back, occasionally oily waste will fall into the cans and run through when the frames are started up.

In clearer picking, great care should be taken to get them clean; otherwise, when the frame is started up some of this bad work will go through.

At the slubber process we never allow a slubber to be fanned off with a cloth fan. At every doff we have the tender pick the clearer boards, wipe the sides and wipe off the bobbin carriage with a rag. We are also very careful in roll cleaning and oiling.

At the speeder processes the speeders are treated in the same manner as the slubber so far as the cleaning is concerned. This is with the exception of the flyers, which should be cleaned off every doff. Great care is taken in the oiling of the rolls and bobbin gears. The roving men take whisk brooms with them at all times and when a box is empty they sweep it out cleanly. They clean the tops of the frames at least once every week. This is done in order to keep small parts of black waste from off the sides of the roving. The speeder tenders are instructed to roll off enough roving when putting up ends to have enough stock to allow them to break off the part which was twisted and soiled by their hands. The roving men should not be allowed to take the empty bobbins down from the frames and throw them on top of the roving. This system is practiced by many, and it causes just as many black places.

The empty bobbins should always be blown out before they are allowed to be filled with roving. I do this with a special machine at no extra cost whatever—a machine of my own design. A boy empties the bobbins into the hopper of this machine and it unloads them by an apron passing the bobbins along so compressed air is allowed to play upon them. This compressed air blows them out cleanly, after which they are allowed to fall into the doff boxes.

Care should be taken when stacking roving in bins to see that none of the ends rest upon the roving. We also stack our roving in boxes while doffing, and the same care must be exercised here. If roving is allowed to remain in boxes for too lengthy periods the oil will soak out of the bobbin ends and soil some of the roving.

CONTRIBUTOR NO. 4925.

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Weighting Beams in Slasher Creels.

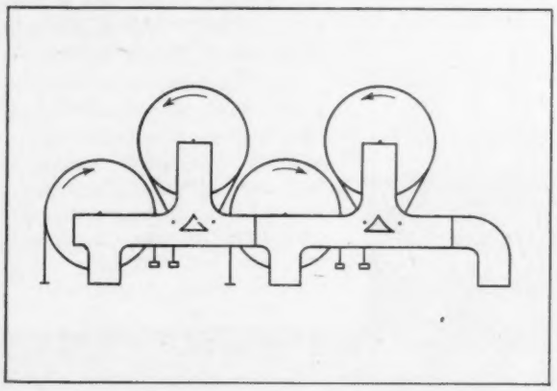
Answer to several questions on various phases of this subject. Your opinions are invited.

EDITOR COTTON:

One of your correspondents has asked several questions concerning the placing of friction ropes on beams on slasher stands, and about securing the same tension on all beams. I will endeavor to answer his specific questions as follows:

First, he said, "I would like to know how you would put friction ropes on beams in slasher stands, and how much weight is required on beams with 18,000 yards of 21s yarn."

Regardless of the number or yarn or yards on the beam, each beam should be weighted as shown in the accompanying diagram. That is, each beam should be



weighted on only one side and on the same side as the other beams, and with the same amount of weight. For 21s yarn, where beams are in good condition and run true, I would advise the use of a 6-ounce weight on each beam. With this weight and good beams and bearings, you will find them all to run out at about the same time.

The second question was, "Do you screw the stand on the back of the slasher up on the nuts to make friction on the beam to keep kinks out of the yarn?"

The foreman should know at all times that the stands are *not* screwed up, and to prevent the operator from doing so, he should have a leather collar placed on the beam journal between the beam and the stand. This collar must turn freely at all times.

The third question: "Why does the back beam have more yarn on it when the set is out than the rest of them? Why? Is it stretched?"

This condition is caused by the weighting of the back beam only, which naturally puts more friction on this beam and thus stretches the yarn on this particular beam. The remedy for this is mentioned in the answer to the first question.

The fourth question: "How would you get the same tension on all of the beams in a set?"

My suggestion for securing the same tension is to make certain that the creels are lined and leveled and that the bearings are in good condition. The beam heads and journals should be examined to determine their condition; they should run absolutely true. Then an equal weight should be placed on each beam. With these simple precautions there is no reason for

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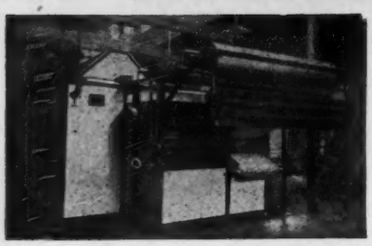

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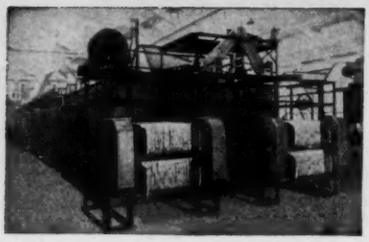

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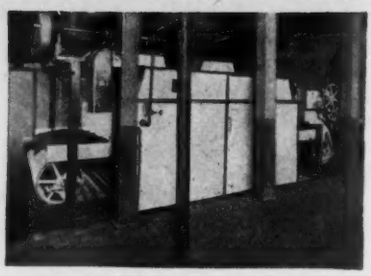

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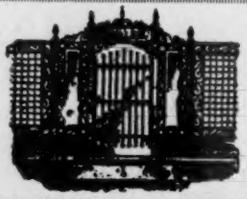

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not securing the same tension throughout.

The last statement by your correspondent read, "The writer has seen perfectly good beams put on the slasher with perfect nuts on them, and by the time the set is run out, the nuts were partly cut away by stands being screwed up too tight to cause friction."

Some mills do allow the operators to screw the nuts up on the stands to secure friction, and they have found the nuts on the beams partly cut away. This is absolutely foolish, as there is no need for such an amount of friction. It must be remembered that the only need for friction is to check the momentum of the beam when the slasher is stopped or slowed down. This momentum can be adequately taken care of by the use of ropes with weights suspended from them as shown in the diagram.

In connection with the diagram, I might explain why the rope holding the weight on the top beam does not hang straight down. It is necessary to hold this rope out of the way so it will not interfere with the bottom beam. To accomplish this I fasten a stud on the inside of the frame, as indicated, and the rope hangs around this stud.

In connection with these questions I might add that some mills, in minimizing the amount of friction in the bearings, have installed ball bearings in the stands. These have been found to be entirely satisfactory.

CONTRIBUTOR No. 4948.

Wants Criticism of Combed Yarn Lay-Out

Also asks for breaking strength figures and variation for 40s, 50s and 60s. Combed yarn Men are urged to reply.

EDITOR COTTON:

I would appreciate it if some of the readers of the "HOW OTHER MEN MANAGE" department would let me know the following:

(1) the breaking strength in pounds; (2) the per cent of variation in breaking strength; and (3) the per cent of variation in yarn number, for 40s, 50s and 60s warp yarn, combed.

The 40s being made from 1-inch stock, and the 50s and 60s being made from 1⅛-inch stock.

The following is the layout used:

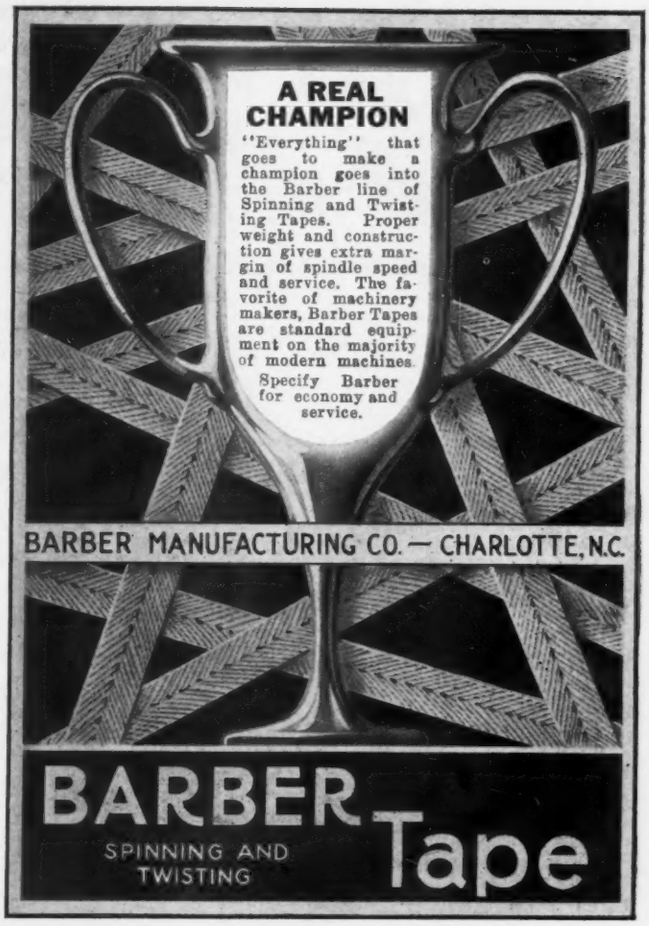
12½-ounce lap
44-grain card sliver
465-grain sliver lap
465-grain ribbon lap
48-grain comber sliver
50-grain first drawing sliver
50-grain second drawing sliver
.75-hank slubber roving
2.00-hank intermediate roving
6.25-hank jack roving
6.25-hank double roving on long draft spinning frames.

I would like some figures for comparison and would be glad to hear from some reader who is making the numbers listed from approximately the same staple cotton.

CONTRIBUTOR No. 4963.

Terrell to Handle Waltham Counters.

The Terrell Machine Co., Charlotte, N. C., have been appointed as representatives in the South for the Waltham Watch Company, of Waltham, Mass., representing them on their lines of pick counters for looms and other counters for textile use.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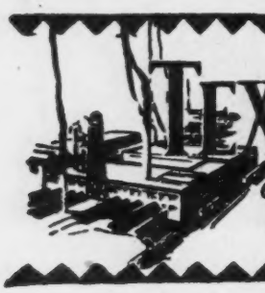

TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any reader of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

1. **Cotton Picking, Carding and Spinning**—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. **Pepperell Equipment**—10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

3. **Modern Practice in Textile Wet Finishing** (Slack Loop System)—Practical discussions, various methods bleaching, covering batch, semi-continuous, fully continuous for cotton, rayons and mixtures. Request must be on mill letterhead. By Rodney Hunt Machine Co., Orange, Mass.

4. **New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor**—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

5. **The Bahnson Master Control**—Bulletin No. 801, 5 pages. Illustrated. Automatic device designed to control humidifying equipment so as to maintain a constant relative humidity. By the Bahnson Company, Winston-Salem, N. C.

7. **Tubes and Bobbins for Ring Spindles**—Nine-page booklet with useful information on the fit of tubes and bobbins, dimensions of tubes and rotation of the tube. By J. I. Bernitz, Agents, Emil Adolff, 47-49 West St., New York City.

8. **"Textile Brushes"**—10 page booklet illustrating brushes for cleaning every part of mill. By Gastonia Brush Co., Gastonia, N. C.

9. **"Custom-Built" Motors**—Complete set of bulletins covering various types of electric motors for textile master mechanics and executives. By Louis Allis Company, Milwaukee, Wis.

10. **Leathers, Textile**—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. **Whitinsville Rings**—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

12-A—**Instruction Manual for Type K Bobbin Cleaner. Also Instruction Manual for Utsman Bobbin Cleaner**—two separate booklets describing adjustments of machines outlined, and also describing effect of bobbin shapes upon the cleaning process. These booklets intended for users of machines outlined. Applicants should designate which booklet is desired. By the Terrell Machine Company, Charlotte, N. C.

12-B—**Instruction Manual for the Termaco Roving Bobbin Cleaner**—booklet in four sections on adjustment of machine; on how to use machine to best advantage in reducing waste and saving labor; parts catalog; description of new attachments which can be applied to earlier models of the machine. By the Terrell Machine Company, Charlotte, N. C.

13-A—**Equipping Modern Textile Plants**—Booklet, 35 pages, illustrated. Describes value of Monel Metal equipment in textile plants and presents reports from mill owners and operators on actual experiences; equipment, descriptions, etc. Also **Dyed in the Truth**—Reprints of advertisements of special interest to textile dyers. International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

15. **The Powers System of Thermostatic Control**—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

17. **Arcy**—12 page booklet on getting most value from starch in warp sizing and cloth finishing. By Drake Corporation, Norfolk, Va.

18. **Popular Industrial Chemistry**—162-page handbook for dyers, chemists, finishers, purchasing agents. By Kali Manufacturing Company, Philadelphia, Pa.

19. **Quaker City Chemical Co.**—48-page booklet containing useful information, tables, formulae, on dyeing, bleaching and finishing all textiles. Issued by above company, 2736 North Broad Street, Philadelphia, Pa.

20. **Bleaching, Dyeing, Finishing and Printing Textile Goods**—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. **Warp Sizing and Composition of Cotton**—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

22. **Tragasol and Its Uses**—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. **Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum**—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

24. **Wyandotte in the Textile Mill**—90-page booklet with information on bleaching, dyeing all textiles, including hosiery.—J. B. Ford Co., Wyandotte, Mich.

25. **"Lupogum" and "Monopole Oil"**—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

27. **The Seven Factors of Belting Economy**—Booklet, 112 pages, illustrated, containing authoritative information on the economical layout, care and operation of belt drives. Chas. A. Schieren Company, 33 Ferry Street, York, N. Y.

28. **Akron Belting**—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. **Continuous Card Stripper**—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. **Lubrication of Textile Machinery**—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

31—**Canvas Baskets and Trucks.** Doff boxes, trucks and for all textile uses. By Rockweave Mills, LaGrange, Ga.

32. **Flooring, Open Steel, Area Gratings and Steps**—Folder, 6 pages. Illustrated. For platforms, walks and stairs; non-slipping By Kerlow Steel Flooring Company, Jersey City, N. J.

38. **Sleaziness in Full Fashioned Knitting**—Illustrated survey with samples of fabric showing causes of sleaziness, and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

39. **Trend of Sales of Silk, Rayon and Cotton in the Piece Goods Departments**; twenty-four-page booklet; prepared by DuPont Rayon Company in conjunction with National Retail Dry Goods Association. Copy furnished without charge by either of above. DuPont Rayon Co., 2 Park Ave., New York, N. Y.

41. **Budget Control**—40-page booklet showing how each part of business budget should be prepared and principles of its effective operation together with a summary of benefits.—by Ernst & Ernst, accountants, 27 Cedar Street, New York, N. Y. (This company also has available booklets on **Standard Costs, Business Control Through Analysis, The Better Wage, Factors to Consider in Working Out Mergers.**)

42. **Textiles and the Telephone Typewriter**—6 page booklet on telephone typewriter service for communication between mills and selling houses. By American Tel. and Tel. Co., Long Lines Department, Atlanta, Ga.

44. **Points of Interest in and Around Atlanta**—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

45. **Fidelity Universal Ribbers**—a forty-eight page booklet showing the advantages and many styles of ribbed fabric and describing in detail and illustrating the latest developments in ribbers. Sent free on request by Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, Pa.

46. **Mundet's New Black Book**—Including specifications for the installation of cork pipe covering under various conditions, telling how thick the insulation should be, listing the sundries that are needed with cork pipe covering—showing what to do when pipes are close together, explaining how to order, prices, etc. Copy sent free to anyone interested in cork pipe insulation. L. Mundet and Son, Inc., 461 Eighth Avenue, New York, N. Y.

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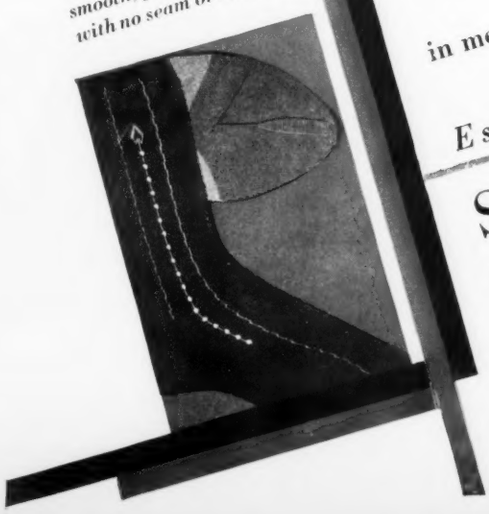

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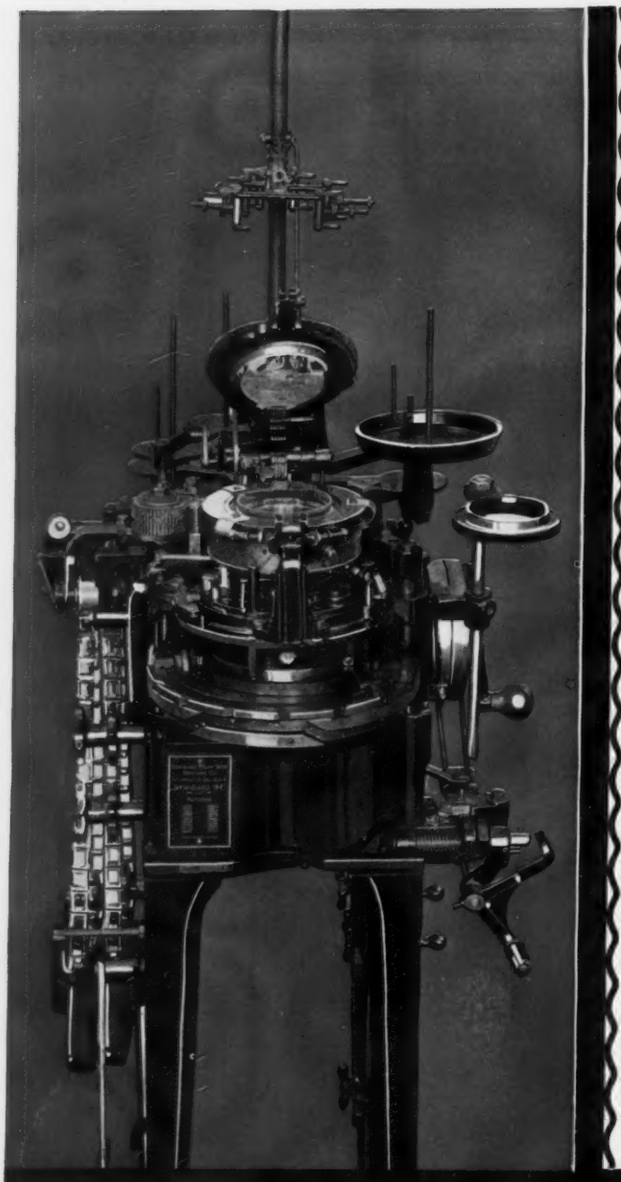

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Preventing Waste in the Manufacture of Full-Fashioned Hosiery

By C. H. Baxter

WITH this interesting article on an important subject, Mr. Baxter returns to our columns. In it, he starts with the cone-winding, and discusses the major operations in full-fashioned knitting, pointing out the kinds of necessary waste and unnecessary waste, and giving his experiences as to ways by which the former may be decreased, and the latter brought down to a minimum.—The Editor. . . . . . .

WASTE! What a trying problem that is to us hosiery manufacturers. If only we could educate the employees as to what a factor waste is in the cost of manufacturing. We all realize that in manufacturing full-fashioned hosiery there is a certain amount of necessary waste but the question in any hosiery mill is how much waste is necessary and how much waste is unnecessary.

In this article I shall try to point out the necessary waste and endeavor to show the readers how this can be reduced, and also try to show how steps can be taken to reduce the unnecessary waste. Material waste that must necessarily be made in manufacturing full-fashioned hosiery comes through such operations as tying ends in cone winding, pulling threads through carriers on knitting machines, re-claiming press-offs, topping on legs and press-offs, looping and the general handling of materials. Other waste is machinery supplies, breakdowns, mistakes in knitting, and machinery and equipment not kept in repair.

Waste in Winding.

In order to point out how waste can be reduced, let us start with the first operation, namely, cone winding. Most manufacturers of full-fashioned hosiery receive from the throwster the silk wound on cones and where the backwinding method is used, the silk is re-wound over an emulsion. Very little waste should be made in the back-winding operation and most of the waste that is made is because of careless handling of cones. Silk on cones when not handled properly will ravel the top layers of silk on the cones and then it is necessary to take off the ravelled portion in order to find the end of silk for winding. Ravelled silk on cones is unnecessary and the winder should be taught to handle cones with extreme care to prevent this condition. When a silk end breaks down on a certain spindle, the winder should see that only enough silk is pulled back to re-tie the broken ends. Many times a winder will rub the cone in trying to find the broken ends and this will result in the top layer of silk on the cone to become ravelled and produce waste. The winder should also be taught to tie the end on finished cones the same way as the throwster had his operators tie the ends so that when the knitter receives the cones he will have no difficulty in finding the end to be tied. In the cone winding operation a constant examination should be made to see that no loose ends are on the machines that might fly into cones, causing the knitter later to have press-offs, which will cause waste.

Cleanliness in winding is very important to prevent waste as the winding many times is the cause of excessive waste on knitting machines.

Waste in Knitting.

After the silk is wound, it is given to the knitter to be knit into stockings. Most wasting of materials is done in the knitting operation and here is where one must be constantly on the alert, if waste is to be reduced. First of all the method used for the delivering of material to the knitter is important. Silk should never be carried by the armful to the knitter but should be delivered to him on boards. When silk is carried on the arm, there is always the danger of ravelling the top layers of silk on the cone and this causes waste. In fact the less handling of silk with the handle, the less waste one will have. When a knitter ties up a cone of silk or cotton he should always be careful not to waste more silk than necessary and should always pull the knot through the carrier so that the knot does not knit into the stocking. This is one item where through pulling the knot through the carrier causes waste, but it is better to make this waste than take a chance of having the stocking become a so-called second, because of an unsightly looking knot in the stocking.

Press-offs on a knitting machine are the main causes for waste and here is where economy should be practiced. For every press-off, there is a cause, and the knitter should find out what caused each press-off.

Press-offs are caused by slubs in the silk, cones of silk underwound, knots catching the silk end on the cone, untied winders knots, cut carrier tubes and tension rings, and ends throwing underneath the cone.

When press-offs are caused by slubs, underwound cones and knots catching and holding the end or untied ends, the winding should be investigated. When press-offs are caused by cut carrier tubes or cut tension rings, then the knitter should have these replaced. When ends are throwing underneath the cones, a felt pad should be placed under the cone to prevent this cause.

Topping-on press-offs is where the most waste is made and here is where good judgment and super-

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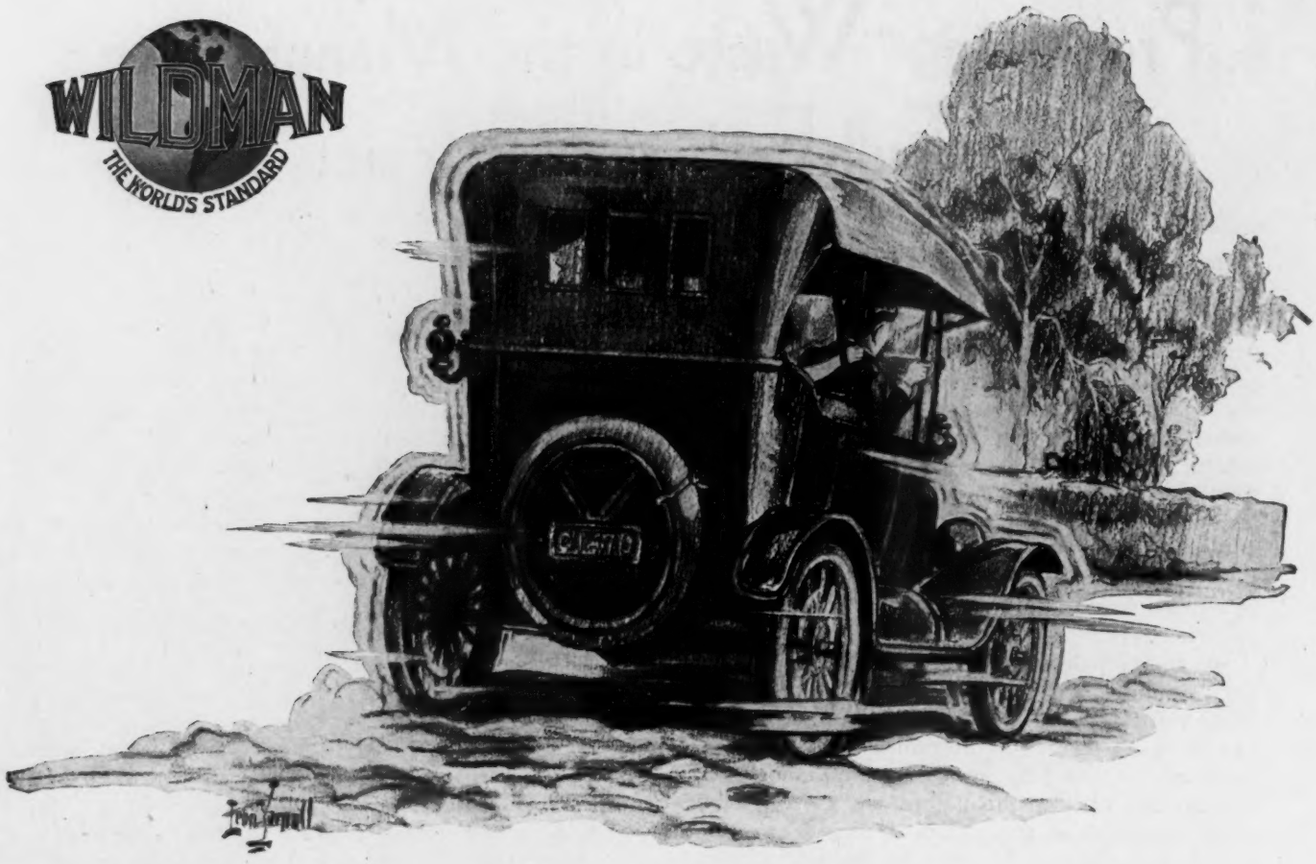

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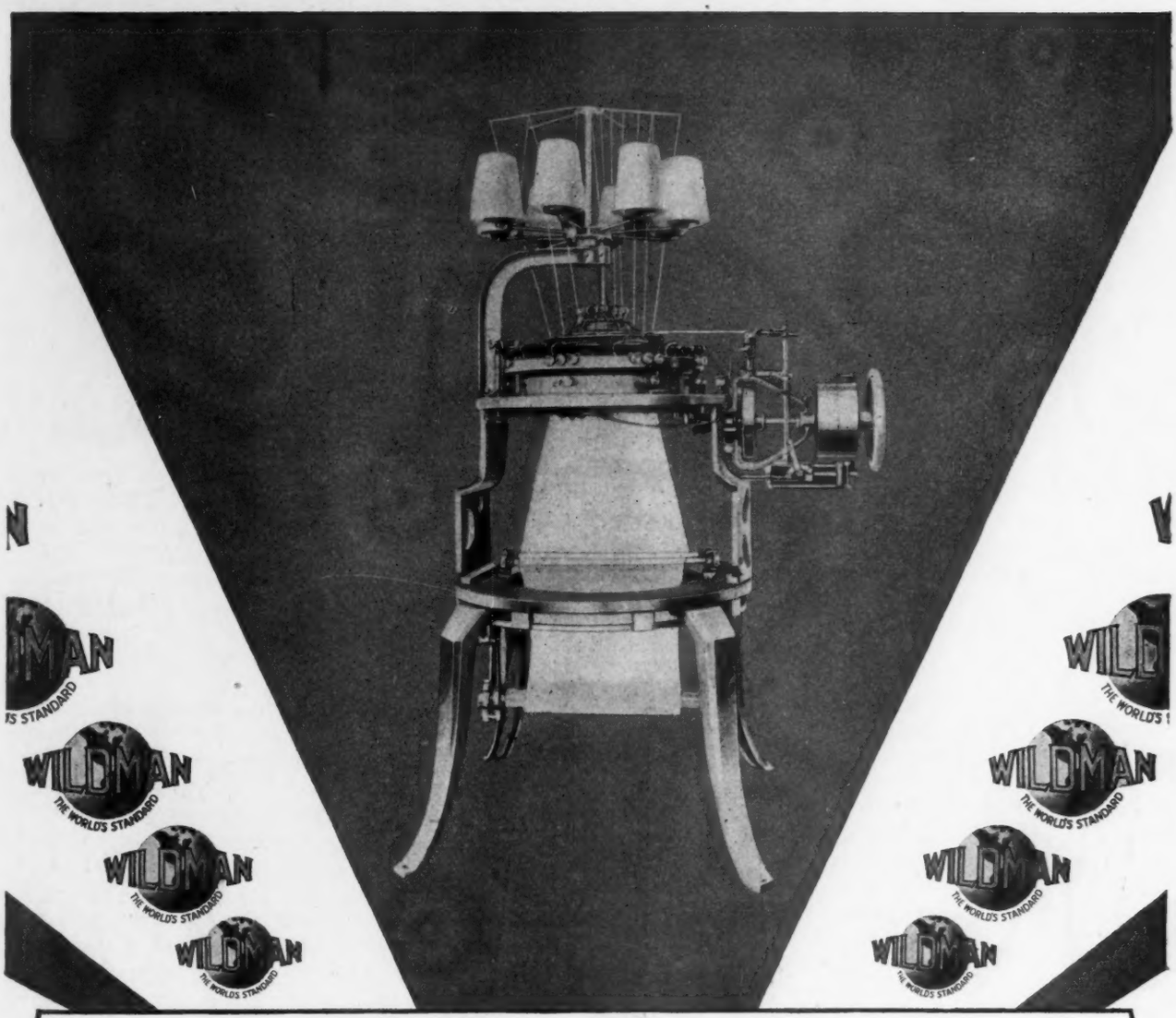

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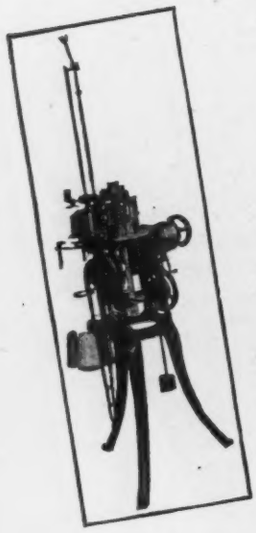
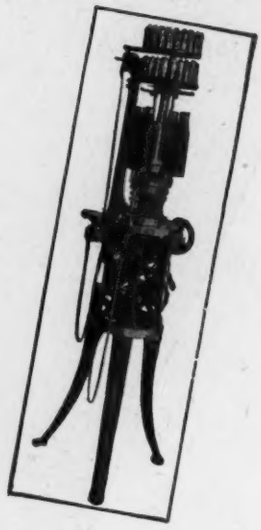
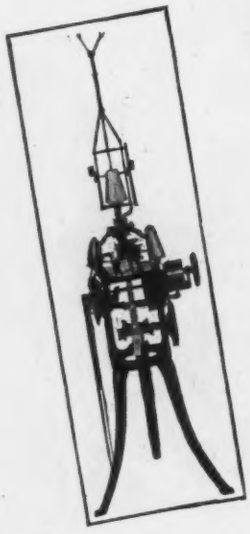
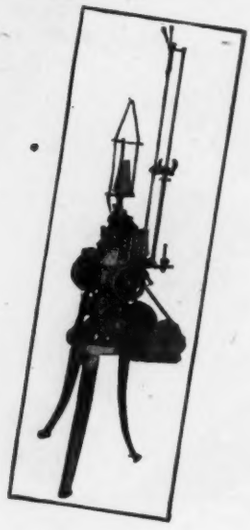
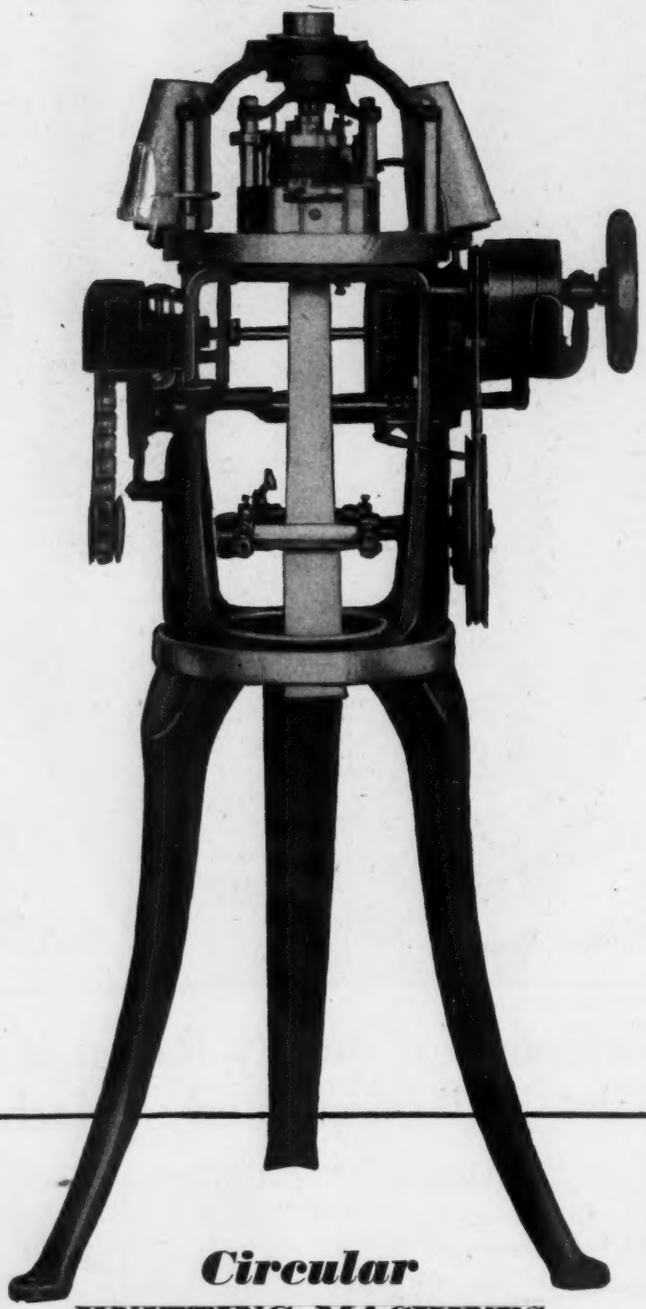
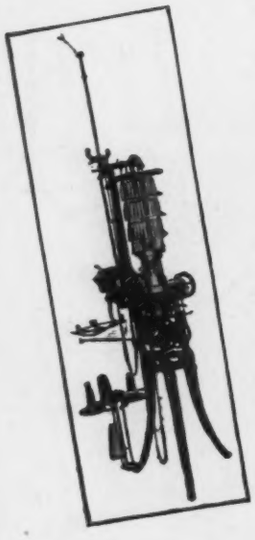
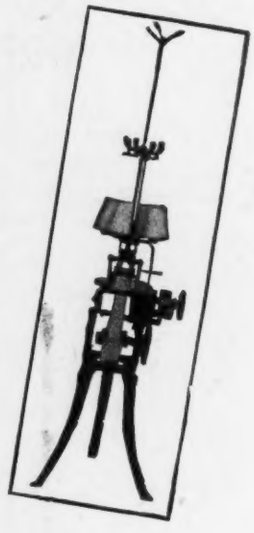

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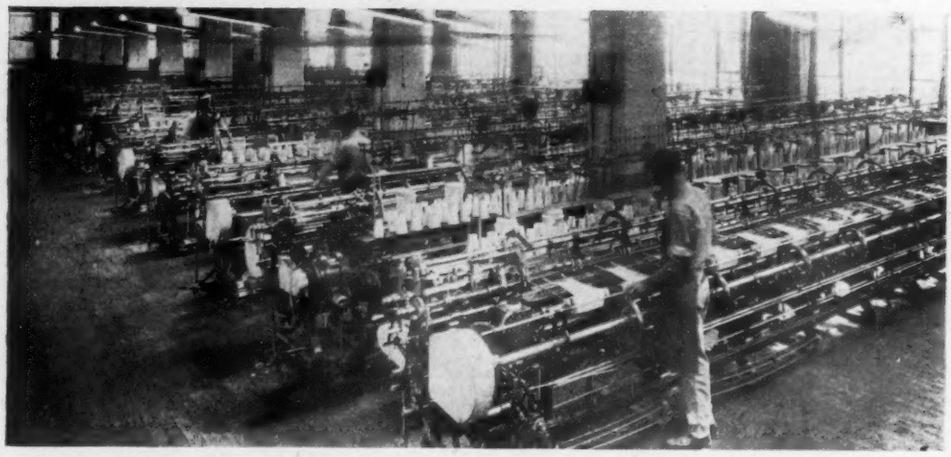

"Press-offs are the main causes of waste. For every press-off there is a cause, and the knitter should find out what caused each press-off" . . .

vision is needed, if one wishes to prevent unnecessary waste. My experience has shown me that most knitters will top on press-offs only at the end of the welt, beginning of the leg narrowings, or beginning of the splicings, and will ravel a press-off to these certain points. If knitters would only realize the amount of waste they make because of excessive ravelling, they would use better judgment but unfortunately they are not the ones that pay the bills and therefore will not always top on stockings by stopping the machine when the stockings on the machines are about as long as the press-off that is to be topped.

Therefore, to prevent too much waste being made by knitters in topping press-offs, I find it is best to collect press-offs each day and sort them out by the lengths that they can be topped on. Then the following day after the collection give each knitter a set to top and see that the stockings are topped as per instructions, which he will receive from the person in charge of this work. For general topping of press-offs give the legger spoiled legs made by the footer and then he can top stockings at the beginning of the splicing or in the heel. The method of disposing of press-offs is what any manufacturer of full-fashioned hosiery should study to reduce waste and I strongly urge those interested to study this problem if a reduction of waste is to be made in their hosiery mill.

Another cause for excessive waste of material is when a knitter will not immediately press-off a stocking that has a defect in it. Many times stockings are spoiled in the splicing and instead of the knitter breaking the ends so that no material is used to finish the stocking, he will continue to knit the heel because he does not want to thread the carriers. All material knitted above a defect in a stocking must be ravelled and here is where considerable waste is made. It has always been my opinion that knitters who do this should be made to pay for the waste made and usually this method is the most effective method that can be used.

In the topping operation or in other words the operation where the legs are topped on ready for footing a necessary waste is made here in what is called topper ravellings. This ravelling waste should be cotton and not silk. There are still some manufacturers who do not have the carriers set on the legging machines so that the ravelling courses made on a legger for the topping operation are made with cotton instead of silk. From twelve to sixteen courses should be allowed for topper ravelling and the toppers should be taught not to top the legs any deeper than that number of courses. When cotton is used for ravelling the topper should top legs just below the beginning of the cotton or about two courses in the silk. If any manufacturer is not using cotton instead of silk for topper ravelling, I would strongly urge him to change his legging machine so that cotton is used, as this means a saving of at least five cents a dozen and amounts to a considerable sum over a period of time.

An unnecessary waste in the topping and footing operations is the excessive spoilages of legs. All legs spoiled mean that they must be ravelled down to the beginning of the high splicing in the heel and that is waste that can be reduced by reducing the amount of legs spoiled. A system should be installed that will show how many legs are being spoiled by toppers and footers and if the amount is over one-half of one per cent of the footing production, then the spoilage of legs is excessive.

In footing, a lot of unnecessary waste is made because the footer will not press-off a stocking having defects in it. By this I mean that a footer will have a stocking on the machine which has a defect in it and instead of pressing off, then will continue finishing the foot and then returning this stocking to the topper and have it re-topped.

Waste in Looping.

One way of saving waste on footing machines is by having two or three extra transfer bars and having all feet that are spoiled in the toe topped at the beginning of the toe. These can be transferred to the footing machine and a new toe knitted on them, thereby preventing the waste of material in the entire foot. In fact the regular transfer bars can be used to top on a full set of toes occasionally and by waiting until enough spoiled toes have accumulated to make a set, the entire set can be topped on in this manner. Re-topping toes is one thing that will reduce waste and the footers and toppers should be taught to top and transfer toes as well as legs.

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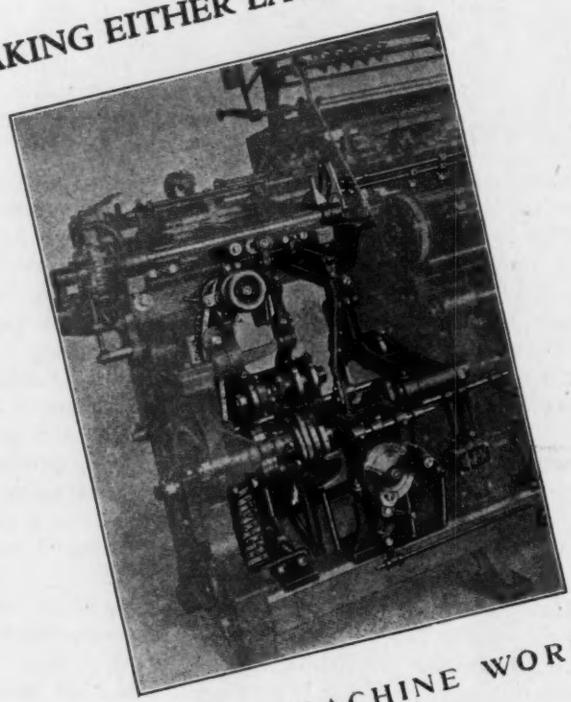

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In the looping operation the necessary waste is the ravelling of the heel and toe tabs. To reduce the waste on this operation one should see that the number of courses made after the loose course in the heels and toe are just enough so that the looper can loop properly. Long tabs are unncessary waste and an examination should be made occasionally to see that these tabs are not being knitted too long. In the looping operation many times one finds stockings where the toe or heel tab has become ravelled and the result is that the stocking is spoiled and considerable waste is the result. A method I have used for years to prevent this is to have the knitters clip with their scissors a corner of each heel and toe tab and by cutting the corners this stops any danger of ravelled heels.

Another cause for waste in full-fashioned hosiery is pull threads because all pull threads found in grey goods means ravelling of material, so that as much of the material as possible can be reclaimed. Pull threads are caused by rough places catching the threads and also caused by stone rings worn by female employees. Each mill should have a strict rule that no stone rings are allowed to be worn during working hours. Causes for pull threads in hosiery should be investigated at all times, especially in reference to footer hooks or rough places on knitting machines, as well as all equipment used for storage of hosiery.

One of the questions that arise in every mill is what percentage of waste should be allowed per dozen in the cost. Of course, the percentage of waste varies according to the weight and style of hosiery made. My experience has been that any mill who has no more than an ounce of waste per dozen average can be assured that the material given to the employees is handled with good care and that very little unnecessary waste is being made. If the average percentage of waste is more than one ounce per dozen then the amount of waste is excessive and an investigation should be made to find out what the causes are for having this excessive waste.

Waste in Needles and Supplies.

Other waste of material in a full-fashioned hosiery mill is the waste of needles and supplies. In most mills the knitter must pay part of the cost of the needles he uses and this is an aid in helping to reduce the waste on this item. Other supplies such as welt hooks, narrowing points, etc., he does not pay for, therefore these items are sometimes wasted.

If one would go through the sweepings of a mill and endeavor to reclaim all the narrowing points, welt hooks and other supplies, it would be surprising how many good parts can be reclaimed. A record should be kept of all supplies given to each knitter and if a check is made it will always show that certain knitters use too many welt hooks, narrowing points, and other supplies. If an investigation is made one will find that the knitters using too many supplies are careless in the upkeep of their machines and the result is that they have excessive breakage of these parts. A knitting machine in poor condition means other waste is being made elsewhere, therefore a check on the amount of supplies a knitter uses sometimes will show up excessive waste of material, poor work being delivered, as well as the excessive waste of supplies. I therefore believe it advisable for every full-fashioned hosiery manufacturer to keep such a record and by watching the knitters who use too many knitting machine parts, it enables them to stop waste in many ways.

Needle Breakage.

In knitting, the breakage of needles is a waste producer because when a needle breaks usually a stocking is spoiled. When excessive breakage of needles occurs then there is something wrong with the knitting machine or the knitter is not keeping his machine in proper condition. Where excessive needle breakage occurs, an investigation should be made at once to determine the cause.

A question sometimes asked is how many needles per dozen should one consider as a normal breakage. Again this depends on the weight and style of stocking that is being made. However, from figures that I have kept over a period of years on average style hosiery made on the most popular makes of knitting machines, I find that the following is about what one can expect as a normal breakage, this being based on twenty section machines.

42 gg leggers	Chiffon 1	needles per doz.
42 gg leggers	Service 1¼	needles per doz.
45 gg leggers	Chiffon 1	needles per doz.
45 gg leggers	Service 1¾	needles per doz.
42 gg footers	Chiffon ¾	needles per doz.
42 gg footers	Service 2	needles per doz.
45 gg footers	Chiffon 1½	needles per doz.
45 gg footers	Service 2	needles per doz.

These breakage figures are high on some types and styles of stockings but I might say to the readers that I have always made hosiery with heavy heels and toes and the result is that the breakage of needles especially in footing has been higher than when an average weight heel and toe is made. This average is based on a production of 50 dozen per week on leggers and 165 dozen on footing machines. I do not want to have the readers, however, feel that these figures on breakage of needles should be considered as a fair average because the breakage of needles is something that is a problem in each mill, based, of course, on the kind or make of knitting machines used, the weight and style of stocking made and the average experience of the knitters employed. These figures are merely presented to show the manufacturer what might be considered as a fair breakage of needles and if a greater breakage of needles occurs, then an investigation should be made as to the cause and an effort should be made to reduce the breakage to prevent what might give excessive waste.

I have tried to outline as clearly as possible the cause of producing waste and how some of it can be reduced or avoided. I want, however, to urge those interested to watch for excessive waste as waste is a loss producer and with prices of hosiery much lower than ever in the history of full-fashioned hosiery manufacturing, one must watch waste and prevent it, if a profit is to be made.

Old Knitter's Ideas on Full-Fashioned Production

DEAR DAD:

I find that I am not getting the production from my 24-section machines that other mills are reported to be getting and I am trying to check up on this problem to find the cause.

I would like to know what your average production is for 24-section leggers and 24-section footers running 10 hours.

I have had some conflicting reports recently about the possible production of certain machines and I am anxious to know what your experience has been.

Thanking you to give me this information at your earliest convenience, and with love to all, I am

YOUR DEVOTED SON.

DEAR SON:

It is really heartening to get an inquiry from some one interested in increasing his production. My problem for the past several months has been how to keep production down, and the question has not been how many dozen will the machine produce in ten hours, but how many hours will the machines run if you will allow the knitters to work, which probably explains some of the big production you have been hearing about.

Then again, when you look *through* some of the stockings being shown in the display windows for as low as 50 cents a pair, it does arouse your curiosity to know how many such stockings a machine would produce in a day.

When the question of speed is considered I always think of the hare and the tortoise race. The old turtle kept on plugging, and won the race, while the rabbit lay down to rest.

When you ask the question how many dozen a legger should produce, it is necessary to define the construction of the stocking. I will say further, that the production can not be reckoned by the number of courses the machine operates per minute, but more accurately by the continuous number of minutes the machine operates, and this does not depend altogether on the efficiency of the machine, but largely on the efficiency of the operator. As an example, I was talking to a footer operator today who has found by experience that his machine operates more satisfactorily at a speed of 48 courses per minute, and he does not allow his speed to exceed this amount.

He is running on four to six needles a day and producing 10 per cent more dozens per week than his fellow worker in the same alley on the adjoining machine who is operating his machine at 54 courses per minute.

In answering your question as to our production on a 24-section legger and 24-section footer, we operate two different makes of machines on 42 gauges at a speed from 60 to 62 courses per minute on the same style goods and the production from each is about the same. On our 7-thread number we put a total of 1535 courses. The average production is a set every 43 minutes or 14 dozen per day of 10 hours. If the two knitters in the alley will exchange work and help each other hook up and turn welts this time may be cut about three minutes and increase the production one dozen per day. The foot on this number runs 370 courses on size 9½ and the production is a set every 12 minutes with the toppers helping drop the bars giving a production of 50 dozen in 10 hours.

On our 5-thread number with a picot top and a total of 1630 courses, the average production is a set every 48 minutes or 12½ dozen per day of 10 hours, which may be increased by the two knitters working together as stated in the foregoing.

The foot of this number on size 9½ runs 409 courses and the footer will produce on a 24-section machine an average of a set every 13 minutes giving a production of 46 dozen per day.

We also operate 24-section leggers on 48-gauge. These machines operate at a speed of 60 courses per minute and on a 4-thread number containing a total of 1700 courses, this machine produces on an average a set every 50 minutes or 12 dozen in 10 hours.

This production is footed on a 20-section machine running 48 courses per minute for a total of 402 courses on size 9½ and will turn out a set every 14 minutes for an average of 35 dozen in 10 hours.

I wish to say in conclusion that you should be more concerned with the quality of your production than the quantity. The most profitable way to increase production is to decrease waste and seconds. When you decrease seconds 5 per cent you automatically increase the amount of firsts 5 per cent, and the only goods that count on the profit sheet are firsts.

Trusting that this will cover your inquiry and give you the desired information, I remain

YOUR DAD.

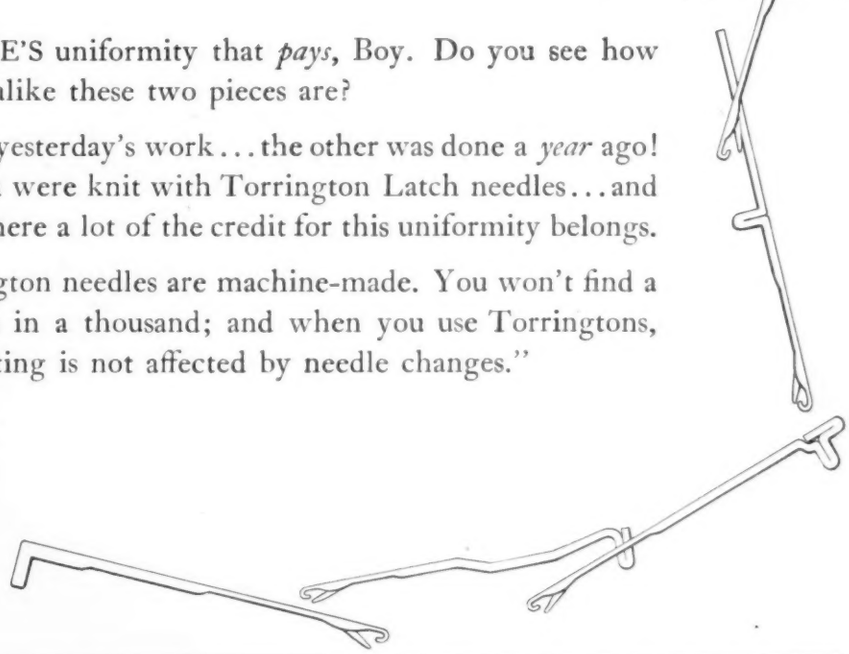
The Old Knitter Talks

"HERE'S uniformity that *pays*, Boy. Do you see how exactly alike these two pieces are?

"One is yesterday's work . . . the other was done a *year* ago! But both were knit with Torrington Latch needles . . . and that's where a lot of the credit for this uniformity belongs.

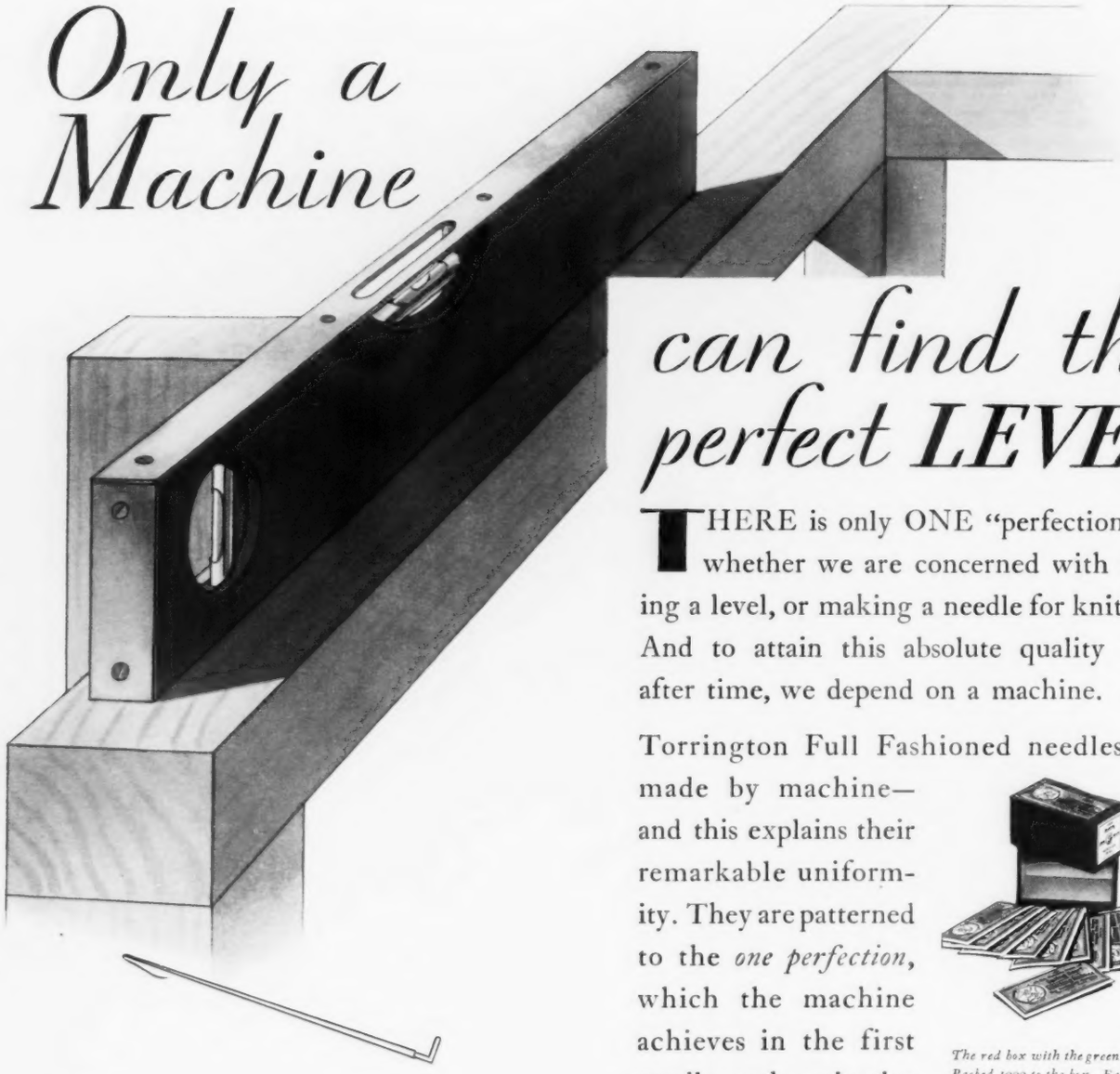
"Torrington needles are machine-made. You won't find a variation in a thousand; and when you use Torringtons, the knitting is not affected by needle changes."

The red box with the green label



TORRINGTON *Latch* NEEDLES

Only a Machine

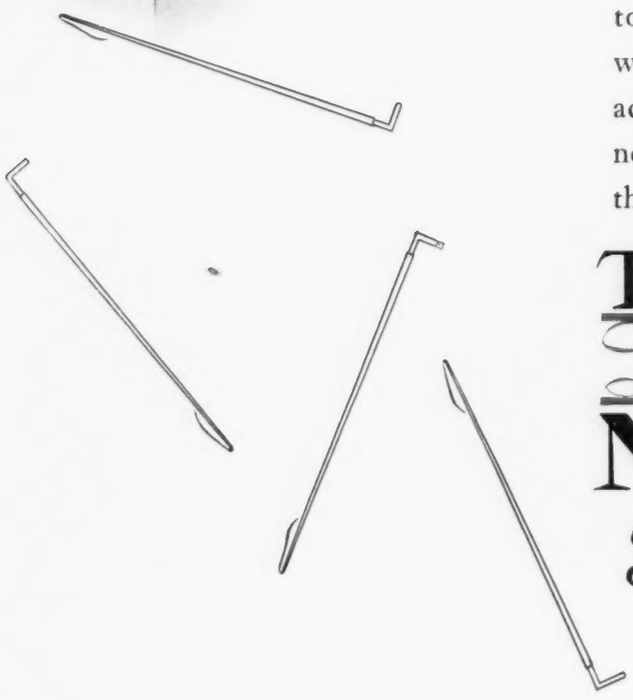


can find the perfect **LEVEL**

THERE is only ONE "perfection"... whether we are concerned with finding a level, or making a needle for knitting. And to attain this absolute quality time after time, we depend on a machine.

Torrington Full Fashioned needles are made by machine—and this explains their remarkable uniformity. They are patterned to the *one perfection*, which the machine achieves in the first needle and maintains through the last.

The red box with the green label. Packed 1000 to the box. Each box contains 10 packets of 100 needles wrapped in glazed paper.



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The Principles of Single-Unit Knitting

Discussed by Dr. Robert Reiner

An interesting description of some of the back-ground of a much-discussed subject.

Dr. Reiner

THE PAST few weeks have witnessed a veritable cloudburst of statements concerning machines which will knit a complete full-fashioned stocking. We must turn back the calendar to get a clear picture of the situation.

As far back as 46 years ago, attempts were made to build a single-unit machine. Those early efforts were made to try to overcome some of the obvious defects of the two-machine system, producers of that day being extremely anxious to improve the quality of their output. Present efforts are prompted by a more vital interest, the need of hosiery manufacturers for a manufacturing method which will give them a fair return on their operations, by reducing production costs. Today's mechanical solutions of the problem are as different as the reasons urging more modern experimental efforts.

One could probably find people today who would condemn all attempts to fly because Moisant fell on his attempted flight, and we are certainly hearing from many people who blindly condemn the modern single-unit machine because earlier developments were not practical. But regarding single-unit machines, engineers have generally agreed that once the right principle of construction were worked out the problem would be solved.

In the past, engineers applied themselves to two different methods. These were the method generally known as "the split needle bar method" and the "narrowing outward method". Out of the years of attention given to these two methods has emerged a third principle of single-unit operation which has recently achieved a definite success.

The split needle bar method did not entirely do away with hand transfer and presented difficulties of operation too great for the skill of the average full-fashioned machine operator. This method, too, resulted in too high a ratio of seconds to allow the machine to compete profitably with the two-machine system. With the split needle bar method knitting proceeds from the welt to the topping point in the regular way. When the topping point is reached, knitting then proceeds on the two outside portions of the needle bar only, enough courses being knit to form the heel portion. This heel portion is then pressed off and transferred outward by hand, after which knitting proceeds along the whole bar, with narrowing to fashion the foot.

The other method formed the heel portion by "narrowing" outward. This, of course, could do nothing but stretch the stocking to shape for no extra wales were knitted in to take care of the extra width of fabric. While this method did not require the hand transfer operation of the split needle bar method, it was unavoidably slow, for the machine lost a course each time the narrowing fingers came into play to transfer the fabric outward. In many instances as high as fifty such narrowings were required to form the heel portion of the stocking which seriously cut down the production time of the machine.

Neither of these two methods offered sufficient advantages to the hosiery manufacturer to arouse any lasting interest. The whole question of single unit machines then lay dormant for a considerable period of time. However in February of this year a third method of construction was announced,

This third method, developed in the Weehawken plant of Robert Reiner, Inc., employs the principle of widening by wales, actually knitting additional fabric in at those places where the stocking is widened. Reference to the accompanying diagram will illustrate the complete action of this machine.

Beginning at the welt, knitting proceeds in the regular way with the usual number of narrowings to point *B* where the process of widening takes place and continues to point *D* the widest portion of the heel. This widening is accomplished by adding wales so that when the stocking comes from the machine these extra wales run in a straight line from the top to the bottom of the heel portion except that the narrowing fingers are brought into action immediately below point *D* in order to fashion the bottom of the heel portion. It is this method of widening the fabric which differentiates it from other known methods where heels had to be boarded to shape.

These additional wales are added over but one needle at a time thereby forming a ravel-proof selvage and this selvage form is maintained from points *B* to points *G* on each side of the stocking. At *G* a loose course is knit followed by ravel courses to point *H*.

Knitting then proceeds straight down the foot as on the present type of full-fashioned footer, to point *J*, where a series of narrowing courses are knit to fash-

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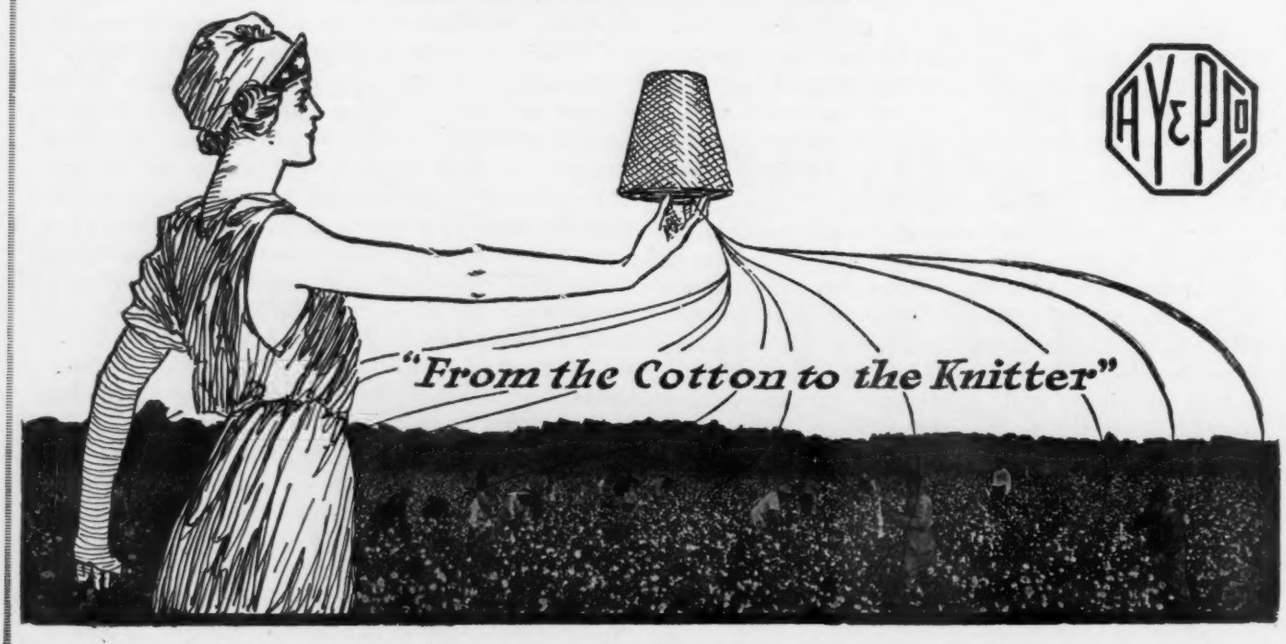
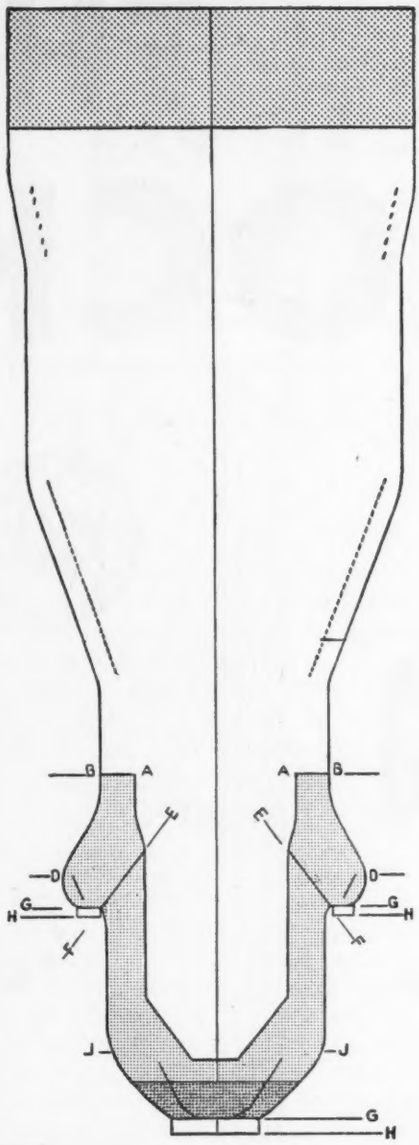




ion the foot. The foot is thereby formed without diamond shaped gussets, although, if desired, it is practical to equip for knitting these gussets. Again, in the toe, from points *G* to *H* loose and ravel courses are knit to take care of subsequent looping.

There is a special arrangement of the splicing thread carriers so that it is possible to knit an all silk heel and toe, or all silk heel with plated or split foot; or all silk foot with plated or split heel; or any desired combination. Special adjustments are provided to accommodate desired changes in size. The instep, points *AA* on the diagram, is knit independently of the heel portion, points *AB*, so that this instep portion may be as wide or as narrow as circumstances require. The number of wales which may be added from points *B* to points *D* is limited only by the width of the needle bar so that if it were ever necessary the heel could be knit as wide as the welt of the stocking. This arrangement of controls for size is to give very flexible control of fashioning and fit around the heel and instep.

Separate splicing thread carriers are employed in knitting the heel and toe and heel and toe portions are joined by a double row of interlocking stitches forming diagonal lines from the topping point to the heel gore adding extra strength at the point of greatest strain.

The extra splicing thread carrier is also employed in knitting the toe, forming what is known as a ring toe construction and is a feature of reinforcement for extra wear.

Production on the machines now in operation at the Universal Hosiery Mills has been established at from 9 to 11 dozen every ten hours depending upon the gauge and number of courses per inch.

It can be seen by those who are familiar with the principles of single-unit knitting, that this machine takes an entirely new departure in overcoming the obstacles which have cropped up in the past and it is quite possible that further developments in the building of single-unit hosiery machines will be carried on along the lines established by this machine.

Among the Knitting Mills

ALABAMA HOSIERY MILLS, Decatur, Ala., have resumed operations and will probably reach full production within the next ten days. Two new machines will be installed, and about 125 workers will be given employment when full production is reached.

Columbia Knitting Mill, Columbia, Miss., manufacturers of men's hosiery, will enlarge their plant in order to increase capacity 40 per cent, which will require 15 additional knitting machines and loopers. They have already been ordered.

A. W. Neimeyer & Co., Graham, N. C., have completed installation of three full-fashioned machines and have ordered four more, which will be immediately installed.

It is reported that Novelty Hosiery Mills, Marion, N. C., will soon install 12 new knitting machines and auxiliary equipment.

Pilot Full-Fashioned Hosiery Mill, Valdese, N. C., have awarded contract to J. M. Brinkley & Son to build two brick additions in which will be installed 20 full fashioned machines for the manufacture of silk hose. Approximately 100 employees will be added.

A new dye plant, costing $4,000, has just been completed for the Marion Knitting Mills, Marion, N. C.

Machinery and equipment of Lake City Hosiery Mill, Marion, N. C., is being moved from present quarters to another building in the same town to provide room for expansion.

The city of Shelby, N. C., is endeavoring to secure a hosiery plant, which is to be established by High Point, N. C., business men. The city has offered $150 per month to the new company if they will bring in a payroll of $1500 per week and install new machinery, over a period of three years.

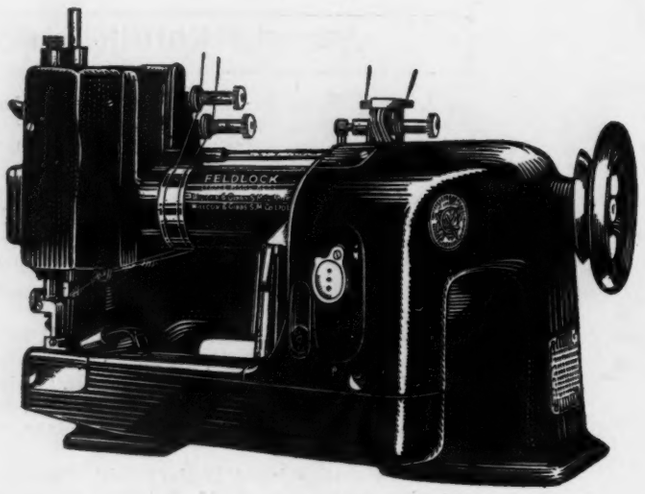
Asheville Hosiery Co., Asheville, N. C., will shortly start work on the construction of a new two-story addition, of brick, steel and glass structure, which will double the capacity of the plant. The addition will cost about $90,000, including additional machinery and other equipment.

Chipman-Burrowes Hosiery Mill, East Flat Rock, N. C., will install $20,000 worth of machinery.

Conover Knitting Co., Conover, N. C., has been incorporated with capital stock of $100,000 to manufacture hosiery. The company was incorporated by A. L. Shuford, Jr., Annie W. Shuford, and A. L. Shuford. They have purchased 35 Banner split foot machines for making men's split foot hose from the Hemphill Co., of Pawtucket, R. I. The plant has its own dyeing and finishing equipment.

Bryan Hosiery Mills, Inc., Chattanooga, Tenn., have purchased four additional 42-gauge, 24-section, full-fashioned hosiery knitting machines from Textile Machine Works, Reading, Pa.

THE FELDLOCK



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What Yarn Is Best for Topper Course?

EDITOR COTTON:

What is the most practical size of yarn to use on a 42-gauge, 7 or 8-thread full-fashioned number for topper courses of the French lip type? Should this yarn be combed regular twist, mercerized or mercerized gassed? Considering the price differential in yarn sizes, what number would be the most economical to use in the topper courses?

I hope some of your readers will give their ideas on this.

CONTRIBUTOR NO. 4987.

Cut Threads.

Another answer in reply to the cause of cut threads in the anti-run portion of the hose.

EDITOR COTTON:

"I would like to know if any of your readers have ever experienced cut threads in the anti-run portion of the hose?" This question was asked by "CONTRIBUTOR NO. 4831" in a recent issue of COTTON. He said he was using 70s/2 mercerized yarn on 220-needle Model K machines and was having trouble with cutting in the anti-run portion of the hose.

In answer to this, I will say that during the days of coarse gauges, 200-, 220- and 240-needles, cuts in the anti-run were frequent and apparently no cure was available. It was not long, however, before 260-, 280- and 300-needle machines with pointed heels came along. This brought about a different set-up, and a more precise one. Stitch cams had to be correctly ground and gauged and the rising cams were placed more accurately on account of finer yarns and smaller needles.

The most important of these adjustments were bumpers feeding the sinkers on the forward side. These sinkers must be brought into action before the stitch is completed by the needles. If this does not take place, there might as well not be any sinkers. To hang a weight on the stocking and leave the sinkers out would have the same effect. The sinkers should be fed as close as possible, and without getting them under the yarn so as to interfere with the needles taking the yarn down. As these changes were made, cuts in the anti-run left our mill.

Care should also be taken to see that the stitch cam is long enough and matched with the rising cams. Then too, the sinkers should be fed before the fabric reaches the dead stage beyond the rising cam.

CONTRIBUTOR NO. 4940.

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Baxter Comments on Article on Sizing Hosiery.

Staff writer disagrees with B. D. Gaddy about sizing hosiery from full-fashioned machines.

EDITOR COTTON:

I wish to take this means of complimenting Mr. B. D. Gaddy on the splendid article he wrote on "Sizing Hosiery," which appeared in your December 1930 issue.

His article was complete in every detail and he brought out many things, which should benefit those interested in the manufacturing of full-fashioned hosiery.

There is one part of his article, however, in which I cannot agree with him. He writes as follows: "I believe any mill with as many as 25 machines can well afford to employ an efficient sizing man to do nothing else but look after this work." In my opinion a mill with 25 machines does not need this additional overhead, and this responsibility should be placed on the knitter and the foreman should see that the knitter has all stockings running evenly. Knitting hosiery as far as the knitter is concerned is not merely to know how to take off sets of stockings but he should learn sizing as well. He should be taught how to measure courses and certainly should be able to tell what heads on the machines are making the stockings too short or too long.

I also believe that very few full-fashioned hosiery men will agree with him on "The Folly of the Yardstick." The yardstick on a knitting machine work table is very important and it is just by measuring the total length of the stocking with the yardstick that one will find out how the stockings are running in length.

If he had stated that the use of a yardstick was folly where a knitter gets his silk from several sources, I would have agreed with him, because using every Tom, Dick or Harry's silk, will never size hosiery and whether he is counting courses or using a yardstick, uneven sizes are bound to occur after dyeing.

When a knitter uses one throwster's silk only, and one kind of soaking only, the yardstick is a very reliable tool or instrument to detect short or long lengths and the knitter, as well as the foreman, should have a yardstick available at all times.

In making these criticisms, I want Mr. Gaddy to feel that this is merely my opinion and I certainly am not doing this to belittle his article, as I read it with much interest and hope that we shall see more of his writings in COTTON.

C. H. BAXTER.

Gaddy's Reply to Baxter

EDITOR COTTON:

I wish to thank Mr. Baxter, through you, for his comments on my article on sizing full-fashioned hosiery, which appeared in the December issue of COTTON. I appreciate having the other man's views on this very important subject. While I can't agree with Mr. Baxter's views, I do not think less of him because he does not agree with me.

I am ready to admit that the method he advocates for sizing is the one most generally used by all full-fashioned manufacturers, and is as old as the industry itself. The yardstick is an indispensable instrument in most mills, and the manufacturer of knitters' benches who would attempt to make benches without the yardstick would soon go out of business. Yet there is just about as much reason in a tailor measuring the height of a man to get his waist measure as there is in getting the length of a wet gum silk stocking to see how it will fit a hosiery form.

The yardstick gives only one dimension when we are after total area.

Mr. Baxter as a full-fashioned knitter will agree that the shortest stocking coming from the machine gets more than its proportionate part of the pull of the ware roller take-up, and stretches in proportion and comes off the machine about the right length but too narrow. Mr. Baxter will also admit that he never saw a knitter measuring a bunch of stockings on a knitter bench that could hold them all just alike. If the stocking is inclined to be just a little long, he will lay it loosely on the yardstick; if it is a little short, he will pull it just a little and by the time he finishes the lot, his measurements are just about as accurate as stepping off an acre of land, stepping three feet at each step.

I am a little surprised that Mr. Baxter would take issue with me when I advocate a sizing man for as many as 25 machines. He places this responsibility on the knitter and indirectly on the foreman. The only way the foreman can check the knitter is to size the machines and when he checks all the knitters properly he becomes an efficient sizing man, and if you prefer to call him a foreman I have no objection. Mr. Baxter seems to place a lot of confidence in his knitters to hold them responsible for the sizing of the machines. I wonder if Mr. Baxter ever heard of a knitter kicking his pattern chain or pulling his course counter a few courses in order to speed up production. If it were possible to get a crew of knitters so well disciplined that they could be depended on to see to it that every stocking came off the machine right, we could dispense with a great deal of the overhead that Mr. Baxter refers to. We might even eliminate some high-priced management.

I have found in my experience in running a mill that the best way to get anything done and done right is to delegate some individual to do the work and hold that individual responsible. I believe that one efficient sizing man will size 25 machines more accurately than any 25 knitters in the industry, and I will go further and state that I believe that I could put an efficient sizing man on any 25 machines in the country where the sizing is being looked after by the knitters, and save enough money in seconds alone to more than pay the salary of the sizing man, and at the same time greatly improve the quality of the entire production.

It won't cost a man much to try it, and if it doesn't work he will still have his knitters and yardstick left.

Please understand that I am not advocating a sizing man for every 25 machines. We have one sizing man for 100 machines. Neither am I advocating relieving the knitter of his responsibility. The knitter should be required to keep a close check on stitch variation and report all such trouble to the sizing specialist, but the average knitter has no more business making mechanical adjustments that affect the stitch on a full-fashioned machine than the average automobile driver has to make adjustments on the carburetor of his automobile.

We found girl knitters far more satisfactory on seamless machines than men because they were closer inspectors of fabric and left the mechanical upkeep of the machines to trained mechanics. There are a lot of full-fashioned fixers who do not seem to know how to maintain the proper relation of stitch forming parts to produce a balanced fabric. Then what could you expect if all the knitters are allowed to adjust slur-cocks, sinker-heads and needle-bars?

B. D. GADDY.

On Which Type Work are Most Seconds Made?

What is your comparison of seconds made in making Grenadine and tram silk hose?

EDITOR COTTON:

I would like to find out from someone making Grenadine hose how their seconds on Grenadine work have compared with their other work. To be more specific, I would like to know something of the percentage of seconds obtained from those making both Grenadine and 4 thread tram silk hose.

Any information along this line will certainly be appreciated.

CONTRIBUTOR No. 4946.

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Asks About Plaiting in High Splice, Heel and Toe.

How do you get good plaiting on 5-thread, 15-turn silk over 120s gassed yarn?

EDITOR COTTON:

I would appreciate seeing in your "KNITTING KINKS" department some discussion as to the best practice in plaiting 5-thread, 15 turn silk over 120s gassed yarn, in the high splice, sole and toe on full-fashioned hosiery made on 42-gauge Reading machines.

I would be glad to have this subject discussed fully by your readers, pointing out any settings, adjustments, etc., which aid in securing satisfactory work at this point. We have been having difficulty in getting good results here and any suggestions of any character which may be offered will be appreciated.

CONTRIBUTOR NO. 4973.

More About Conditioning Silk.

A contributor finds a penetrant in wick boxes good on high twist. Advocates back winding.

EDITOR COTTON:

I have been reading with interest the discussion in the January issue of COTTON regarding the causes of diamond and distorted stitches in full-fashioned knitting. I notice that "CONTRIBUTOR NO. 4874" recommends the use of a penetrant in the wick boxes on the knitting machines. I would appreciate finding out more about this, as I believe that the use of a penetrant in wick boxes would greatly facilitate the knitting of high twist silks.

CONTRIBUTOR NO. 4979.

(The following information is taken from the reply of "Contributor No. 4874" and is published for the benefit of other readers interested.—The Editor.)

EDITOR COTTON:

With reference to the inquiry regarding the penetrant used for wick boxes, will say that we prepare our water for the wick boxes by adding from 1 to 2 quarts of (name of penetrant on request) to 50 gallons of treated water. We have a 50-gallon drum mounted on a truck which we wheel to a convenient location for the knitters, and they draw from the drum the quantities required. We do not recommend an amount of penetrant exceeding ½ per cent of the weight of the water.

At the present time we are not running any grenadine or high twist silk, and do not find a penetrant for the wick boxes necessary on silk twisted up to 15 turns when conditioned on the back winder.

We are great believers in back-winding for conditioning silk. The back-winding emulsion can be made in such a way and the guides adjusted to carry the thread across the roller with sufficient angle with the roller at high speed to pick up enough lubrication for all practical purposes. The silk will be further improved by being allowed to stand in an automatic controlled conditioning room for three or four hours to mellow up and absorb the free moisture it picks up from the back winder.

The excessive wetting of the silk at the knitting machine by any of the wick box methods is more or less a surface wetting and the free moisture on the surface of the silk is not conducive to perfect stitch formation.

CONTRIBUTOR NO. 4874.

Answers to Questions on Bad Sizing.

EDITOR COTTON:

I noticed in a recent issue that "CONTRIBUTOR NO. 4815" is having some trouble with bad sizing in rayon and acetate rayon half-hose. He stated that he would be especially glad to have some causes of this trouble discussed.

I don't imagine there has ever been a knitting mill that has not experienced this trouble some time or another. It is very common in mills making half-hose.

I believe that most of my trouble with bad sizings has been when I would make a change and buy yarn from a different dealer. When this change is made, of course it is necessary to make several changes on the knitting machine, and it is due to the fact that these changes are not made that we run into so much trouble. In many instances a mill will buy yarn from a different dealer and will leave the tension devices on the machines just as they were before the change was made. This just cannot be done for there are always differences in the yarn. Not only is there a difference in the yarn but there is generally a difference in the way the yarn is put on the bobbin.

Another reason that a lot of us have trouble along this line is due to the fact that we try to buy a little cheaper yarn. As long as I stick to some good standard quality yarn I have very little difficulty, but just as soon as I try to run a cheaper yarn I start catching ——. Moral: You can't get anything for nothing.

I would like to call attention here to a statement made by "CONTRIBUTOR NO. 4803" in his article "Preventing Lint in Sinker Ring," which appeared in the August, 1930, issue of COTTON. He said, "In our case, this trouble causing streaked and bad work, was completely eliminated in our mill by the installation of an air compressor carrying 40 pounds pressure, and a system of blowing out the machines completely as often as twice or three times weekly if cotton yarn is used, or as often as is necessary for the different kinds of yarn bearing more or less lint."

I agree with our contributor most heartily as to the value of an air cleaning system. I think such a system is well worth while, for I know we have eliminated much streaked work since installing ours. However, I am at a loss to understand how "CONTRIBUTOR NO. 4803" derives enough pressure from 40 pounds of air pressure to properly clean his machines. I have 150 pounds and I believe I could very successfully use more.

CONTRIBUTOR NO. 4837.

EDITOR COTTON:

I noticed in a recent issue of COTTON where "CONTRIBUTOR NO. 4815" said he is having trouble with bad sizing in rayon and acetate rayon constructed half-hose. Well, he can certainly assure himself that he is not alone for anyone that has ever had a mill has had this trouble. I am going to give him some of the

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SINCE the Wrap Stripe Machines were first introduced, their development has kept pace with every practical requirement, at a cost for improvements well in line with normal annual depreciation.

Operators of Banner Wrap Stripe Machines know that in them they have machines which can be depended upon to knit steadily and profitably, and which are ever in step with a variable market's demands.

Banner Wrap Stripe Machines continue to justify the confidence which the leading hosiery mill owners have placed in them. That's why one mill man says to another:

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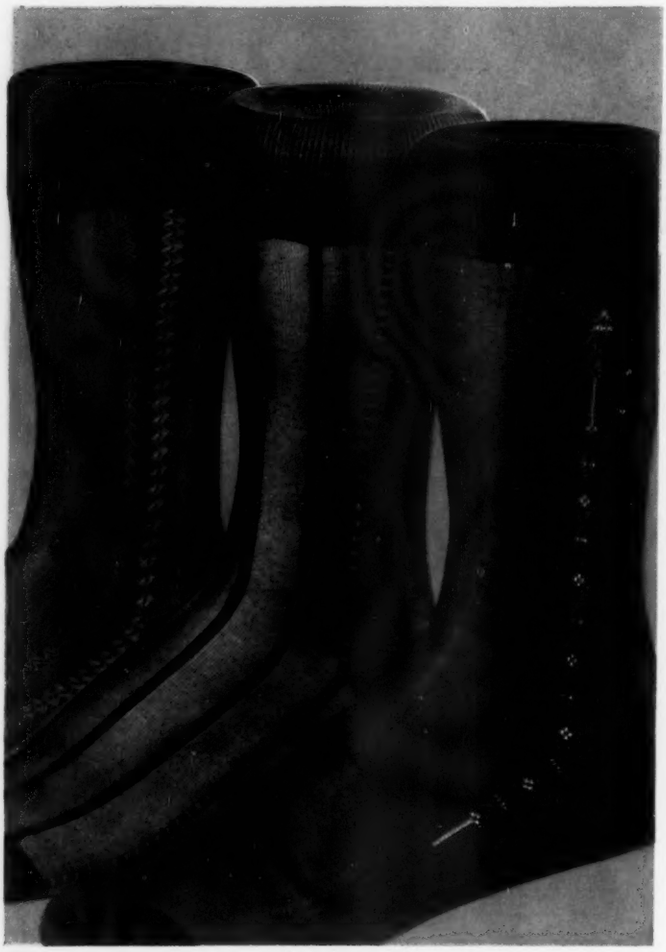

BANNER Wrap Stripe Machines knit *any* yarn or *plated combinations.* Utilizing the famous Banner plating principle, these Wrap Stripe Machines produce a body fabric of unexcelled quality. Plating is so well done that light colored yarns may be run over dark without perceptible influence of the inner yarn. Or, with a simple adjustment of the machine, the two yarns may be used to produce the most startling and pleasing blend effects in the fabric.

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FOR every class of hosiery, half hose, golf hose, etc., there are Banner Machines which offer the manufacturer the widest variety of methods for knitting. And manufacturers know that every Banner Machine, thoroughly efficient when introduced, is consistently improved as quickly as changing market conditions demand improvement.

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NIB JACK — RIB-TO-TOE
SPLIT FOOT — PLAIN BANNER

THE QUALITY of performance of the Banner Split Foot Machine for finest gauges ladies' seamless hosiery has never been equalled. The Rib-To-Toe Machine is being used very successfully for Ladies' Sport Hose.

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WRAP STRIPE — 12 STEP
JACQUARD — RIB-TO-TOE
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BANNER MACHINES have been standard for years for staple, children's hose. They have been leaders for years in better selling children's fancies.

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12 STEP
JACQUARD
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SPLIT FOOT — JACQUARD
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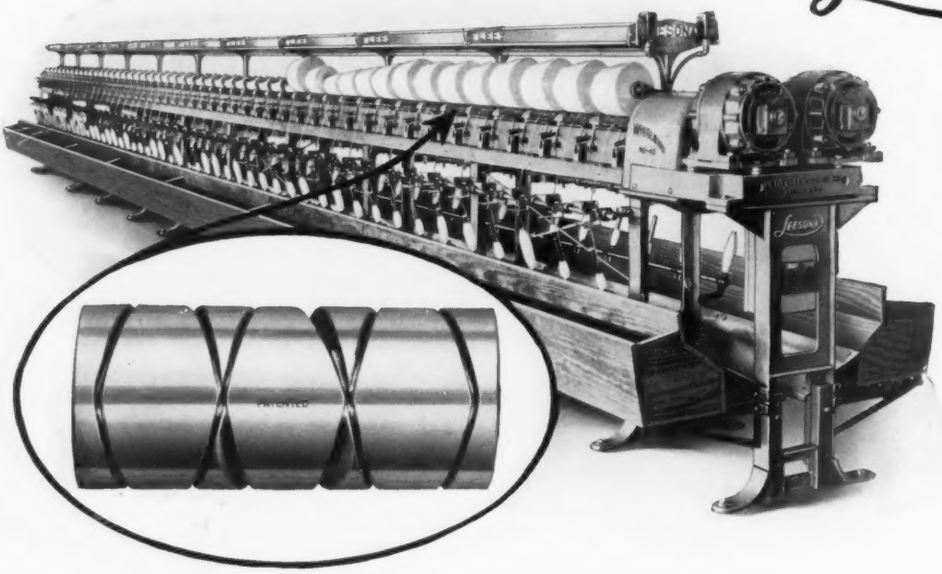

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UNIVERSAL WINDING COMPANY

BOSTON

320

UNIVERSAL WINDERS

causes of this trouble, which may be of some help to him in working out a remedy.

Some knitters set cones on top of each other, as most probably know, and tie the end of the yarn on the bottom cone onto the top so that when the supply of yarn on the bottom cone is exhausted it will merely be transferred to the top cone. This is very bad practice and should not be allowed at all. The change in angle at which the yarn is taken from the bobbin makes a big difference in the tension, and this goes a long way toward making bad sizes.

Other causes of bad sizing are: Sinkers being changed; ballooners being so close that the yarn won't balloon off as freely as it should; knitters changing tensions, thinking that by doing so they will prevent yarn cutting out; variation in yarn bought; and silk being wound too tight on cones.

I do not believe too much emphasis can be placed upon the importance of checking the sizes each time a new lot of yarn is bought, for it is very seldom that a lot of yarn is the same as the preceding lot bought. In practically every case it will be necessary to make some changes in adjustments. If the sizes are checked each time a new lot of yarn is put on the machine, I believe the percentage of bad sizes will be very small.

I hope that as soon as "CONTRIBUTOR NO. 4815" finds a remedy for his trouble he will be kind enough to give us a chance to learn about it.

CONTRIBUTOR NO. 4815.

EDITOR COTTON:

I recently noticed where another man is having trouble with bad sizing, as "CONTRIBUTOR NO. 4815" stated in a recent issue that he would like to get the ideas and experiences of some mill men as to the possible causes of bad sizing in rayon and acetate rayon constructed half hose. He asked for the remedies. I certainly wish I could give them to him. If I could, I could certainly help myself out of a lot of trouble. However, I will mention what I believe to be some of the causes and he may be able to work out something that will help.

I have found that much of the rayon I buy is of different denier and that this gives no end of trouble in bringing about bad sizes. I also find that there is a wide variation in the yarn made by different manufacturers. If the proper allowances are not made for this variation, then more trouble will be incurred. Extreme variations in weather also plays havoc with sizes. Still another is allowing the yarn to dry on the cones. This will make a much bigger difference than most mill men seem to think, for many of them make no effort whatsoever to prevent it.

Of all the possible causes, I believe the one that has given me the most trouble has been getting cones that are wound so differently. One cone will be wound very loosely, being almost as soft as a feather pillow, while another will be very tightly wound. Where such a difference exists there is going to be a difference in the way the yarn is pulled off the cone, and there is also going to be a difference in the sizes of some of the hose.

This problem of bad sizes is a problem that I am afraid all mills will have to contend with some of the time and some of the mills all the time. So about the best any of us can hope for is to stay out of the latter class.

CONTRIBUTOR NO. 4846.

Double Sole Plaiting.

This contributor tells of several remedies for overcoming double sole plaiting trouble.

EDITOR COTTON:

I would like to attempt to help out "CONTRIBUTOR NO. 4895," who recently said that he was having trouble with his double sole plaiting, as I am also on work using 125 denier rayon for body yarn and 90s/1 mercerized in the double sole.

At the present I am running Scott & Williams Model K, 300-needle machines. The first thing I would suggest would be for him to have his needles as straight as possible. He should then check over his tensions to see that he has the proper tension on his rayon. He should have no tension at all on his double sole yarns. The double sole finger should be as close to the needles as possible to get it. The finger for the body yarn should be long enough to keep the rayon yarn at least ⅛-inch from the left corner of the throat plate. I have found that taking emery paper and rounding the throat plate a little where the yarns run, starting about ⅛-inch or ¼-inch from the corner will also separate the yarns. Fig. 1 illustrates how this is done.

"CONTRIBUTOR NO. 4895" might try running in on the lead screw as far as possible without the sinker

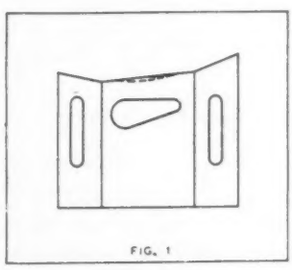


FIG. 1

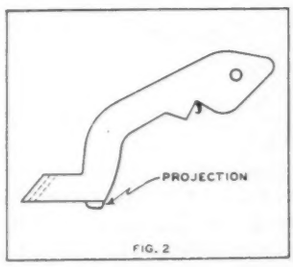


FIG. 2

going in under the yarn. This will help as this enables the sinker to turn the yarns quicker and makes it possible for them to hit the needles in the proper position. Loosening the double sole by means of loosener on thrust rod will help. Another good point about loosening the sole is that you are able to make a tighter ankle, as loosening the sole will make the foot larger and thus possible to make it tighter.

As will be seen by Fig. 2, I place a small projection on the bottom of the double sole fingers. Care should be taken not to have this projection too large, though, as this would make the yarn skip in the sole.

Having a special needle made by having .01 of an inch ground off the top part of the needle butt so the needle head can be bent down .01 of an inch without any danger of streaked work has proven of real value to me in obtaining good plaiting work. This needle is to be used on the going in side of the cylinder only. The needle must have an extra short butt. Fig. 3 shows how these needles are made. They can be secured from the needle manufacturers. We use these all the time in our machines and they have given us

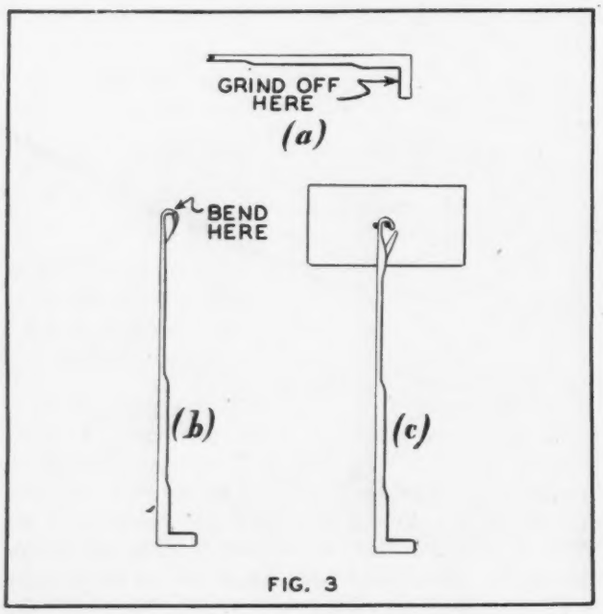


FIG. 3

very good results.

As shown by Fig. 3 (c), a jig for bending the needle heads correctly can be made by use of a piece of steel one inch in length and ½-inch in width, and inserting two pins in the piece of steel just far enough apart to allow the head of the needle to be placed between them.

CONTRIBUTOR No. 4976.

How to Prevent Racking and Lining Trouble.

Read this kink, then let us hear from you.

EDITOR COTTON:

I have noticed quite a bit of discussion lately in regard to racking and lining trouble with tapering heel attachments. I have experienced this trouble often, and believe that I have experienced it enough to feel capable of offering a few suggestions as to how to remedy this trouble.

The first thing to do is to put enough tension on the brakes to hold the rack wheel steady. The racking arm should then be just dropping behind one

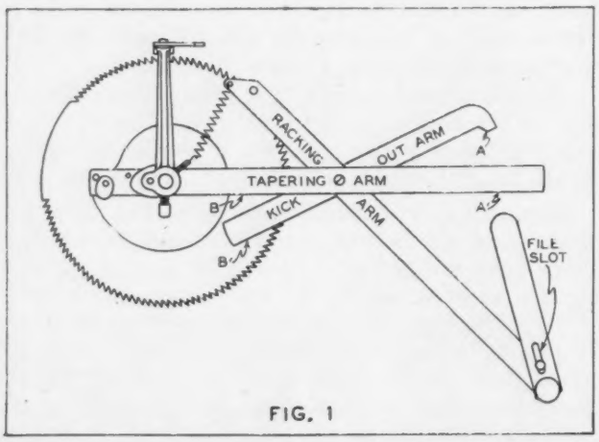


FIG. 1

tooth. The stud which holds the racking arm is shown in Fig. 1. If it is not possible to get the racking arm low enough to give satisfactory racking, the slot should be filed deeper.

Now in regard to lining up the tapering heel attachment, the first thing to do is to see if the kicking out arm is right. If not, the kick-out arm and tapering arm (Fig. 1) should be removed to see whether or not they are together. *B B'* and *A A'* should be flush. If this condition does not exist, the two arms should be fastened in a vise at the point where they intersect and the arms tapped until they become flush. These arms should then be put back on the machine.

The next thing to do is to see that the stitch cam is pulling the needles correctly. Two needles should be up from the corner of the throat plate to where they start down the leg cam or running cam. If they are not up, enough should be taken off the cam to allow this condition to exist.

It should be seen that there is a space of ⅛-inch between the thrust bar and tapering finger, or as near this as possible. This is for five fingers, but it will work for six fingers.

CONTRIBUTOR No. 4935.

Cleaning Monel Metal Dyeing Machines.

EDITOR COTTON:

I note the inquiry of "CONTRIBUTOR No. 4892" as to Monel metal dyeing machines. He wanted a satisfactory way of cleaning these machines after dyeing a developed black in them. He also wanted to know whether the black injures the metal in any way.

In my opinion, under no circumstances should a standing bath of developed black be kept in a Monel-lined tank. I have found that where standing baths are kept in Monel, there is a very noticeable corrosion or pitting at the top edge of the liquor line. So far as we know this is the only way in which Monel will be injured by the action of the dyestuff, and I personally am of the opinion that it is not the dyestuff that does the damage so much as it is the nitrous acid gas which is given off by the sodium nitrite during the developing process. However, it is entirely possible that the dyestuff itself will cause corrosion over a considerable period of time.

So far as cleaning the machine is concerned after a straight dyeing of developed black, there should be no difficulty in this. As a matter of fact, by the time the developed black goods have been properly washed, the inside of the machine should be clean enough to immediately re-load it for another run of some other color. However, in order to make doubly sure of this, the machine could be boiled about 20 minutes with water and soap. If the machine is still dirty, have it re-filled with plain water to which should be added first about two pounds of ammonia or roughly, one quart. Thoroughly mix the ammonia with the water and then add about one to two pounds of sodium hydrosulphite. Heat the bath to about 150 to 160 degrees and run for 10 minutes. Hydrosulphite is a stripping or decolorizing agent, and if there is any trace of dyestuff left in the machine, the hydrosulphite should remove it.

CONTRIBUTOR No. 4913.

The KNIT GOODS MARKETS

An Analysis of Dr. Geo. W. Taylor's Survey of Full-Fashioned Machinery

STATISTICS of the production and importation of full-fashioned hosiery knitting machines in 1930 as gathered and carefully tabulated by Dr. George W. Taylor of the industrial research department of the University of Pennsylvania* are especially important and illuminating when studied in conjunction with conditions in the hosiery markets during the current 12-months period, it being assumed the adverse conditions were due to excess production.

While indications of a much oversupplied market were manifest in the fall of 1928 and evidence of a glut multiplied during the months of 1930, it is important to note that Dr. Taylor's survey shows fewer machines were installed in 1930 than in any year subsequent to 1925, and that last year the new installation was less than one-half that of 1929, when, it would appear, the influx of equipment must have reached its peak for all time, the top being attained during the 12-months period in which close observers saw the beginning of a decline in prices of hosiery that was to mark an era in the full-fashioned industry such as never had been experienced.

Until 1929 there was a long period of continuous expansion of the business of full-fashioned machine builders and manufacturers of full-fashioned hosiery. A halting was foreseen as far back as 1922, when a nationally known executive said to the writer: "I cannot conceive that expansion can be continued much longer; the bubble will burst sooner than some of us anticipate." It seems not inappropriate to say in this connection that the manufacturer whose forecast of nine years ago has been visualized in more severe form than even he probably could have foreseen, virtually disposed of his mill interests far enough in advance of the bursting of the bubble to escape feeling the touch of the spray.

Starting with the premise supplied by Dr. Taylor that 1930 showed a marked decline in installations of full-fashioned "machines"; that they were fewer in number than in either of the preceding five years, one must seek some other explanation for the very great overproduction of hosiery as measured by market absorption. Obviously, the operation of plants from twenty to twenty-four hours per day led up gradually to an over-supplied market. But it would seem apparent that, so long as there remains absence of approximate uniformity in matter of sections per machine, new installation should be measured by "sections" rather than by "machines."

Dr. Taylor in his summation of the facts which he had gathered states that 117 hosiery concerns contributed to the information upon which his report is in part based, and that certain of these 117 "scrapped 130 machines totaling 2,342 sections"—an average of eighteen sections per machine.

Reference to a tabulation by Dr. Taylor in the matter of "sections" discloses that 69.5 per cent of all the leggers installed in 1930 were of 24 sections and 29.5 per cent of 20 sections. Since it is clearly demonstrated by the analyst of machine builders' reports that the trend is to the longer frames, it seems not inconsistent, for the purpose of a glance into the future, to use 24 sections for estimating new installation during this and the ensuing year. If for every 10 machines of 18 sections that were scrapped in 1930 seven 24-section machines were installed, virtually no progress was made in curtailing potential production of full-fashioned hosiery. Some light upon this line of reasoning may come out of Dr. Taylor's survey of hosiery stocks in mills as of January 1st, 1931, which he expects to shortly release to the industry.

45 Gauge Led Machinery Installations.

What appears to have been a general assumption in the hosiery trade is presented as an established fact in Dr. Taylor's survey—that 45-gauge equipment led in last year's new installations. It probably will be a surprise to many manufacturers, however, that 50.8 per cent of the new leggers were of 45-gauge, with 42-gauge ranking second, with a registration of 34.1 per cent.

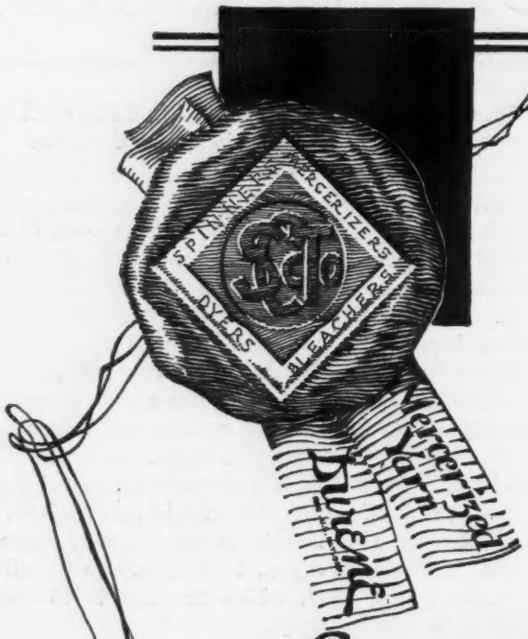
This showing is perhaps of more importance for in a study of the trends when taken considered in connection with machine sections. Of the total leggers installed, 36.1 per cent were of 45-gauge 24 sections, and 26.4 per cent were of 42-gauge, 24-section, while only 14.7 per cent of the leggers were 45-gauge, 20-section, and 7.2 per cent were of 42-gauge, 20-section.

The drift thus is shown to be toward longer frames and finer gauge. In footers the more popular types were 45-gauge 24 section, representing slightly more than 25 per cent of the aggregate, and 42-gauge 20-section, the latter representing 15.8 per cent of the total.

More than one-third of the 1930 legger installations were of 45-gauge 24-section frames and more than one-fourth were in the 42-gauge 24-section classification. This showing would seem to account in large part for the 1930 excess production of hosiery, despite a sharp decline in number of new machines set in place and the scrapping of at least 2,342 sections by certain of 117 manufacturers reporting to Dr. Taylor for the purpose of clarifying the causes of an indicated unbalanced output of hosiery.

Keeping in mind Dr. Taylor's finding that the 1930 influx of new equipment was considerably less than one-half of the 1929 increment, and his showing that of the added equipment last year, 46.8 per cent

*See tables on page 609.



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was in place during the first three months and 69 per cent during the first six months, it would appear logical, from scattered unconfirmed reports of new installations thus far in 1931, that the slackened pace of expansion established last year will be not materially quickened this year, and that therefore the full-fashioned industry has made important strides in the direction of a better balance of hosiery production and consumptive demand.

The statistician points out however, that style changes have occurred rapidly and he therefore suggests the advisability of a census of knitting machines at present in use, a matter in no way referred to in his recent illuminating compilation. In his book "Significant Post-War Changes in the Full-Fashioned Hosiery Industry," published in 1929, Dr. Taylor accounted for 8,413 leggers and 2,957 footers on data secured from 250 mills and partially from six additional. At that time 35 per cent of the preceding year's production and importation of machines comprised but nine of 39-gauge, 868 of 42- and 483 of 45-gauge, the figures applying to 1928. The per cent of production and importations of machines in that year were 53.6 for 42-gauge, 29.8 for 45-gauge and 11.1 for 48-. These figures compare with 50.8 per cent of 45-gauge for leggers, 34.1 per cent for 42- and 11.1 per cent for 48-gauge, in 1930, and serve to clinch the statistician's comment as to rapidity of style changes. As a per cent of total construction, 48-gauge last year almost doubled "in importance," as compared with 1929, he points out. (Trustworthy reports from buyers of hosiery for large retail stores selling the better types of hosiery have indicated for some time that 48-gauge hose were selling at *relatively* much lower prices than 45- and 42-gauge, being apparently overproduced in greater per cent).

Installation Adapted to Price Trend.

Dr. Taylor's survey very definitely indicates the drift as to gauge and number of sections per machine as established by the reports of production and importations last year. According to a very recent survey through retailers of hosiery, by Fairchild Publications, sales of hosiery are in largest volume at prices of one dollar and less a pair and in smallest volume at $1.95 a pair and over. The reports upon which this finding was based by Fairchild's were received from leading dealers in Washington, Memphis, Buffalo, Philadelphia and Pittsburgh, and none from New York. Washington, D. C., dealers estimated sales at one dollar and less as 70 per cent of the whole, Buffalo 50 per cent, Philadelphia 70 per cent and Pittsburgh 65 to 70 per cent, Memphis estimating two-thirds of the city's hosiery demand is in the price range one dollar to $1.35 a pair.

While these figures probably are, in no instance, based upon data such as Dr. Taylor required, they doubtless reflect the trend to or appraisal of what ought to be an approximately fair price for women's silk full-fashioned stockings. While the price drift may be said to have been established last year as downward, and this may be not of secondary importance in manufacturers' machinery specifications, it is apparent from both Dr. Taylor's survey and trustworthy unofficial statements, that leading buyers for the trade and certain mills now are aiming at hosiery of finer stitch rather than at lower prices. Accepting the former proposal, it represents, after all, a downward tendency, an inferential reduction in price that serves as an appeal to the shopping public.

Full Fashioned Hosiery Machinery Construction in 1930—Tabular Reports of Per Cent of Machines Represented by Various Types Covered in Survey by Dr. George W. Taylor.

A DISCUSSION of the report of Dr. George W. Taylor of the industrial research department of the University of Pennsylvania, of a survey of the installations of full fashioned hosiery knitting machines appears on page 607 introducing a review of the hosiery markets. The survey was made in co-operation with the National Association of Hosiery and Underwear Manufacturers. A birds-eye view of Dr. Taylor's findings is presented in a series of three tables. His interesting tabulations follow:

TABLE 1: Full-Fashioned Hosiery Machinery installations; Gauge of Machines Constructed in 1930:

Gauge	Percentage of Production and Importations			Ratio of Leggers to Footers
	All Machines	Leggers	Footers	
33	.2	.2	.2	2.0
39	.1		.4	
42	35.9	34.1	39.4	1.7
45	49.8	50.8	47.6	2.0
48	10.5	11.1	9.3	2.3
51	2.2	2.3	2.2	2.0
54	1.2	1.4	.9	3.0
57	.1	.1		
Total	100.0	100.0	100.0	1.9

TABLE 2: Full Fashioned Hosiery Machinery Installations; Percentage of Total Machinery Production in 1930 Represented by Machines of Varying Numbers of Sections:

Sections per Machine	Percentage of Production and Importations		
	All Machines	Leggers	Footers
10	.1		.2
18	.1	.1	
20	29.4	29.5	29.4
22	.9	.9	.9
24	61.0	69.5	44.6
28	7.6		22.1
30	.9		2.8
Total	100.0	100.0	100.0

TABLE 3: Full Fashioned Hosiery Machinery Installations; Percentage of total Machinery Production in 1930 Represented by Types of Machines by Gauge and Sections:

Type of Leggers		Percentage of Total Legger Installations	Type of Footers		Percentage of Total Footer Installations
Gauge	Section		Gauge	Section	
45	24	36.1	45	24	25.3
42	24	26.4	42	20	15.8
45	20	14.7	42	24	14.7
42	20	7.2	45	28	11.9
48	24	5.9	42	28	8.9
48	20	5.2	45	20	8.0
Others		4.5	48	20	4.8
			48	24	2.6
			45	30	2.2
			Others		5.8
Total		100.0			100.0

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ATWOOD

5B Doubler-Twister

—5330

The point may be illustrated in a recent offering of John Wanamaker's Philadelphia store.

Wanamaker's presented a four-thread silk 48-gauge stocking at $1.85 a pair, which was the same price as that of last year for the store's identical stocking, except as to a change in gauge, it was pointed out to customers. A year ago, the stocking was knit on 42-gauge machines, last fall, on 45- and now, 48-gauge. It is silk throughout, and is made with the cradle foot—picot, of course. It is on sale in the regular way, at $1.85, which seems a high price by comparison with an offering by one of Philadelphia's recognized exclusive shops featuring a three-thread silk, 48-gauge, at $1.35. Both this and the Wanamaker stocking are of dull silk, and while both are of 48-gauge, there is a difference of 50 cents a pair for the shopper to think over. The two stores were using 48-gauge for forcing Easter sales at a time when the festival was three weeks in the future.

Trade Complexities a Sequence of Crepe Silk and Grenadine

IT HAS BEEN found by numbers of manufacturers that their use of dull silk by either of several descriptive terms and variously described as to twist is liable to lead to embarrassing situations when the stores are not over careful. For example, a large department store several weeks ago was having a sale of genuine crepe silk hosiery at $1.95 a pair, at the first floor counters, at the time when the basement department was exploiting 300 needle (seamless) stamped "crepe silk," at 35 cents. This was brought to the attention of buyers for the two departments and the basement buyer discontinued exploitation of so-called crepe silk stockings knitted on seamless machines, since customers seeing crepe silk hose on the first floor priced $1.95 were liable to ask discomforting questions. Simultaneously a store in Louisville, Ky., was running a sale of what was advertised as "dull crepe chiffon hose," at 95 cents a pair. This brought a complaint from the Harron Hosiery Mills in Philadelphia, which produced crepe silk stockings under an application for a patent for its process, which consists in giving two ends of silk 70 turns to the right, two ends 70 turns to the left and the two ends thus produced, four turns. The Harron company had occasion several weeks ago to ask for correction of a New York silk company's comments appearing in several trade publications. In referring to a non-compensated yarn which would not creep when knitted into stockings the silk company inadvertently stepped on the Harron company's toes.

Recent agitation of a proposal for using 20-22 denier silk in place of 13-15 denier in the production of dull hose to retail for a dollar a pair is believed in the trade to be causing little commotion in favor of the change in denier. It is stated by a throwster that the cost of 20-22 denier ranges from 15 to 30 cents a pound less than 13-15 and that to obtain any material advantage from using the 20-22 the manufacturer ought to step up a grade in the silk he uses, in order to get the same evenness. The higher cost of the better grade, the silk throwster states, lessens the interest in 20-22 silk and, he added, "I think the agitation in its favor, mainly because its use might supply a talking point in sales promotion for a while, is dying out."

Some Mills Getting More Business.

Increasing demand for women's silk full-fashioned hosiery has increased since the beginning of March to the extent that mills in the Reading area are operating 20 hours and more per day to machine capacity, while some in Philadelphia have found it expedient to expand production for a time. The better situation was, obviously, first noted in heavier purchases by hosiery specialty jobbers, who, according to certain manufacturers supplying this trade, were taking in larger quantities for the Easter period sales than at the corresponding period last year. This may be accounted for by the curtailment forced upon a considerable per cent of the Philadelphia mills since the middle of February.

Direct-to-retailer mills selling their product under nationally advertised brands have become much busier in the last month, more particularly those whose goods reach the consuming public at popular prices. Manufacturers of 51-gauge and finer were reported on trustworthy authority to have rather large holdings which, it is believed, now is finding a ready market. It is a season when the better grades of hosiery have their better markets.

Collapse last year of the bare-leg hosiery fad left several manufacturers high and dry with cumbersome stocks, some of which has been fed out somewhat recently in response to an artificially created demand for stockings for around 39 cents a pair. There is evidence of considerable call for hosiery to sell for what was expected to be a price for well made seamless silk of 300 needles or thereabout. Dealers declare they would experience not much difficulty in moving 300-needle seamless with talking points and various features adding to merit, which would represent far better value than most of the full-fashioned crossing the counter at 59 cents. While the younger women will not have it, the class to which it is acceptable is not captious and buys it, whether ignorant or informed of its construction characteristic.

Lace Welt and Mesh Hose Seen as Good Seasonal Sellers

LACE WELT stockings represent perhaps the season's leading innovation, and they are reported meeting with a healthy reception from shoppers. A point made in favor of this type of stocking is that runners cannot start from the top, thus diminishing the number of sources of this one trouble. In the better grades selling at $1.65 to $1.95 a pair, the lace part of the welt is knitted on Jacquard machines and offers maximum resistance to wear, it is asserted by traders. The lace welt stockings afford an example of price decline from the spring of 1930. A Jacquard lace line then was sold in leading stores for $3 a

Single Unit Slants

The way of the pioneer is never easy. People laughed at Robert Fulton's steam boat. They whispered knowingly behind their hands when the Wright Brothers talked about a machine that would actually fly. And it is not difficult to imagine how the makers of equipment, which the steamboat and the airplane were destined to rival, predicted all sorts of failures for these two inventions. Time tells!

It is only natural that people with nothing new to offer should decry the advancements made by others in their field. It is natural, too, that unsuccessful engineers should attribute the failures of their own machines to all machines. That's the self defense of a desperate man. For example, we as hosiery machine manufacturers, have been recently subjected to both types of attack.

However, our confidence in the judgment of American manufacturers leads us to believe that they will form their final opinion, not on hearsay, not on rumors, but only as a result of their own investigation at the source.

Reiner 3-T machines can be seen in operation (by appointment).

Reiner 3-T machines have established their production rates for various grades of hosiery.

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Robert Reiner

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Fit TO PERFECTION

because knit to fit. The Reiner 3-T machine provides a new control over sizing at those points in the stocking where fit is of paramount importance. The amount of fabric in instep and heel, and the formation of the heel are controlled by adjustments so accurate they will meet the demands of the most exacting knitters.

3-T TOP TO TOE SINGLE OPERATION FULL FASHIONED HOSIERY MACHINES

DEPENDING upon the gauge and number of courses per inch, the Reiner 3-T machine produces from 9 to 11 dozen every ten hours, complete from top-to-toe on one machine. The stocking is knit to fit, not boarded to shape—and consequently fits to perfection. No strained wales at the instep—no loose fabric at the heel.

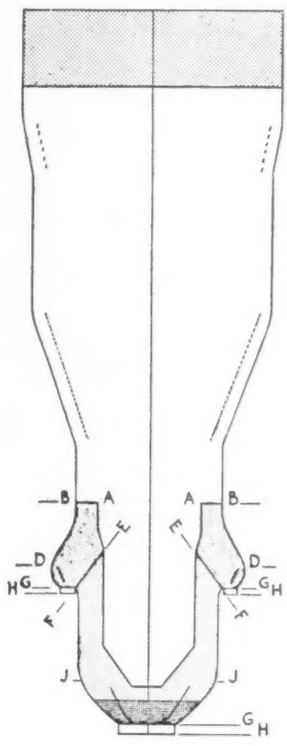
The Reiner 3-T machine abandons the principles employed by the earlier models of single unit machines. Neither the old split needle bar method nor widening by outward narrowings are used. An entirely new principle is used in the Reiner 3-T machine. Widening is accomplished by *adding wales*, actually knitting in extra fabric where extra fabric is needed.

CONTROLS FOR FIT

The instep as represented by A-A in the diagram, is knit simultaneously with, but independently of the heel portions A-B. As much fabric can be added or removed from this instep portion as desired. Similarly from B-D as many wales can be added to the heel portion as are needed for proper widening, and no more need be added than are required for comfortable fit. 3-T hosiery can be more accurately fitted to instep and heel than any full fashioned stocking now manufactured.

STYLE VERSATILITY

Heel, toe and instep can be knit from separate cones of yarn. Yarn change between heel and toe occurs along line E-F. This permits all silk, plated or split heel in combination with all silk, plated or split foot. French or Square heels can be knit with high or low splices. If desired, the machine can be equipped with the Reiner Universal Lace Attachment.



EXTRA-WEAR FEATURES

3-T provides extra reinforcements at point of extra strain or extra wear. Where the heel gore formerly occurred 3-T knits a double row of interlocking stitches to compensate strain in wear. And a special "ring-toe" construction is knit into the foot with extra splicing to strengthen stockings where foot friction causes most damaging wear.

BECAUSE of improvement in knitting for fit, because of wide range of styling, because of unprecedented features of durable construction, and because of high rate of production, the Reiner 3-T Single Operation Full Fashioned Hosiery Machine is hailed by leading hosiery manufacturers as the most revolutionizing contribution to hosiery manufacturing since 1868. Appointments to see 3-T machines, 42 and 45 gauge, in operation may be had for the asking.

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pair. Several of these same stores are displaying it at $1.65.

Mesh hose seems promising of winning widespread popularity as a summer number, unless price competition results in so cheapening it as to repel rather than attract wearers. One of the pivotal mesh numbers, to sell for $1.65 a pair, is of all silk, from 45-gauge machines, which for a time last summer was sold regularly in a few stores for $3. A mesh line from one of the important mills came on the market early in March designed to go over the counter for $1.50. A department store featured its first shipment at $1.35, while another, in a different city, priced it $1.65. The manufacturer filed no objection to this price, but did seriously condemn the offering of the other establishment at $1.35, with the result it was promptly withdrawn from sale, with apologies to the manufacturer for the buyer's "indiscretion."

Men's and Children's Hose Lines a Fertile Field for Sales Promotion

NOTING the success of the change of policy by Nolde & Horst, Inc., Reading, Pa., in the company's distribution of men's half-hose, more manufacturers are strengthening their sales positions, while leaving it to their designers to promote salability through their solution of the problem of what best suits men in the matter of footwear, and their ability to produce fetching patterns and make frequent changes. As in children's hose, there is an increasingly wider field for the designer of fancies, and having originated one strong number after another, say executives, it is up to the sales organization to market them. Thus it happens that some manufacturers are more closely co-operating with jobbers, in many cases using a jobber's packing for their own trade, and are expanding their business. It is related that Nolde & Horst company has largely increased sales since selling to retailers and using Westminster packing.

Always enjoying a good Canadian trade in its men's silk half-hose, the Nolde & Horst Co. will establish a branch at Guelph, in Ontario province, to which branch around 10 per cent of its equipment in Reading for making this line will be sent, in charge of a corps of employees to start them in operation. The Canadian tariff, it is stated, amounting to 35 per cent ad valorem and $1.50 a dozen specific duty, makes this course necessary if the company is to hold on to its Canadian markets.

Exports of men's silk half-hose in December were reported at but 41 dozens, comparing with from 225 to 324 dozens per month for September, October and November. While, it is stated, women's silk stockings are not so much affected by the Canadian customs duties, there appears from official records a decline to 31,522 dozens in December, from 46,324 in September, 44,512 in October and 42,977 in November.

By continually presenting new creations, the Sport-wear Hosiery Mills of Philadelphia, it is claimed by the president of the company, has kept

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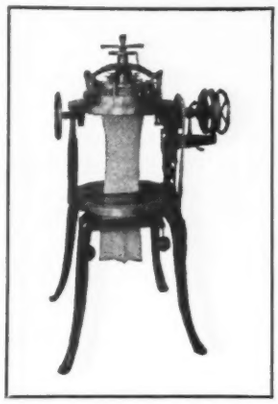
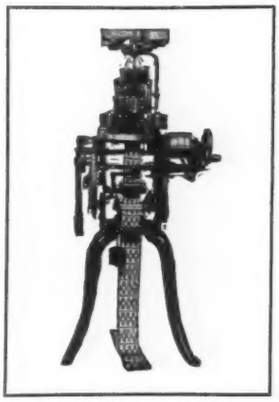
Special Knitting Machines from ¼" to 36".



Plain Rib Body Machine



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the plant in operation for around 14 hours a day for more than three years. The company specializes in popular price golf hose. Its latest innovation is sold under the copyright name "Garterkuf". Its spring line came on the market several weeks ago and price and novelty, say the executives of the company, proved a combination for facilitating the booking of the usual volume of business in a short time.

Styling of children's hose and infants' socks for the fall trade is receiving the attention of manufacturers earlier than usual, and it is stated a strong bid for early bookings is going to be made on novelties on the strictly common-sense order, at popular prices. Representatives of some of the more important northern mills say they regard the outlook for a swift revival in men's and children's fancy hose unexpectedly promising. There is apparent a decidedly better sentiment permeating these divisions of the hosiery trade than a year ago, in which a leading mill agent said, "depression has not made this business as bad as some of us thought it was."

Late Start in Heavyweight Underwear Seen to Defer Lightweight Opening

Some Business Booked in Light Weights.

Weakness during March in men's heavy weight cotton ribbed underwear seems likely to be made a pretext for deferring the opening of light weights until August, or even later, in the opinion of some operators. In less than a month after heavies had been on the market for fall, slight reductions in prices came out. According to buyers who did not make their appearance in New York during the week of the opening, feeling that late comers might be given advantageous quotations, the markdowns were around 12½ cents a dozen on 12-pound union suits and their equivalent in two-piece suits, and amounting to 15 cents on 16-pound suits.

Manufacturers would prefer to not countenance reports of downward revisions, rather having it understood that in instances special discounts of two per cent are allowed. Since reports of price cuts leaked out, buyers for jobbers appear more indifferent than ever about contracting, and in the opinion of one of the older manufacturers who has been a close observer of their methods for several years, there is little prospect of an approach to near normal buying for some weeks.

There are some idle underwear mills, waiting for jobbers to place orders. Buyers are represented as taking the stand these mills would prefer to book some business at a shading rather than continue idle, on the old time worn theory that a slight loss on operation is preferable to a shutdown. Executives of two or three idle mills up the Schuylkill Valley in Pennsylvania say they have no idea of operating at less than at least a narrow margin of profit. Several others up state are eager to start on fall orders, even though they may not be profitable, that they might give employment to some of the idle in their respective communities. This, it is admitted, might mean slight cuts in the wage scales prevailing at the time the plants ceased operating temporarily. The situation in some of the upstate Pennsylvania under-

AT THE PHILADELPHIA EXHIBITION

(SPACE 141)

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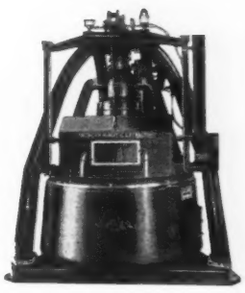

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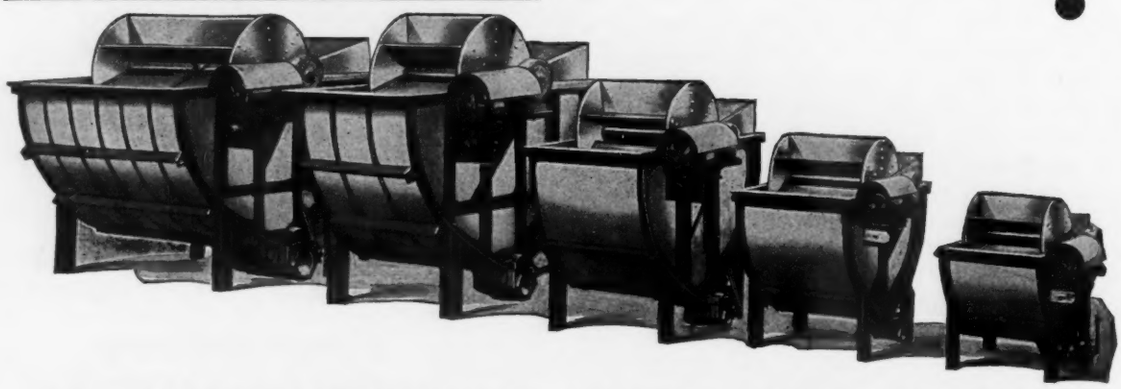

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wear mills is a serious one for employer and employee.

While one pretext for buyers staying out of the market, when idle workers are begging for employment, might be as readily accepted by manufacturers as another, some of the "loud speakers" among buyers say they are doubtful of cotton value, that action by the farm marketing board one way or another would be likely to interfere with the process of stabilizing the market for the raw fiber, and that this, in conjunction with speculation of the attitude of growers toward acreage, causes them to feel it is expedient to make no unnecessary commitments at this time. Besides, said a buyer for a Chicago jobbing house, "when heavy weights were opened, business in light weights was very unsatisfactory. It is all right now, but meanwhile some of the manufacturers, by reducing their prices, left us skeptical as to whether the cuts really meant the bottom had been reached. Price cutting suggested a declining market, in which, and as everybody knows, merchants do only such buying as cannot be put off."

It is a peculiarity of the men's underwear market that while there has been a general tendency among wholesale distributors to place no contracts for heavy weights, some few mills specializing in featured light weights, notably individualistic types of shirts and shorts that are worn the year round, have booked some little fall business, while still waiting for details from several jobbers as to current deliveries.

Improvement in Knitted Outerwear.

An early season at the bathing resorts will reveal scant stocks of bathing suits, even though production be pushed to the very limit up to the opening of the season, it is stated as virtually a certainty by numbers of manufacturers. They are operating plants on full-time schedule, and here and there a producer of lines which ordinarily develop their greatest market strength after the start of the rush to the seaside, is sold tight for a month or more, a few announcing withdrawal of their lines for the present. Mills received lighter orders than usual during the first three months after showing samples, and more of the jobbers were late in buying. So, while there are many busy mills, there will be not enough swim suits on dealers' counters by July 1 to take care of the customary demand, in the opinion of not only manufacturers, but of jobbers as well, the latter accounting for their tardiness by the dilatory tactics of their customers, the retailers.

Business in bathing suits gathered momentum during March and should be active during the next three months. Demand for sweaters for fall did not begin to develop until around the beginning of March, and even now the volume is much in arrears, as compared with a year ago. Some factors point out that jobbers are taking the stand that the profits which they may not realize as a result of not having the goods when the consumer is in the market, might be made up in part by marking up prices in a bear market.

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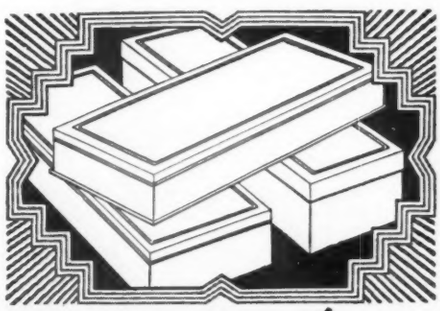

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The YARN MARKET

Philadelphia, Pa., March 16, 1931.

THE REPORT OF LAST MONTH showed that prices were beginning to take on a much more uniform character than had been the case for some months. There was also noticed a slightly improved demand, this being especially true for carded and combed yarns. The majority of buying that took place during the month was on a rather small scale, but there were enough buyers in the market to run the total sales for the month to a fair figure.

During the first week of the present report period, the week of February 16th, the majority of yarn distributors advanced their rates for carding weaving yarns from ½ cent to a cent a pound, and it did not appear that sales suffered any as a result of the increase. Sales, however, were still far from what was desired by spinners and dealers. At this time it seemed that sales during the month of February would run about the same as during January, but would be quite a bit less than those of February of last year.

It seemed that several advances in cotton coming along at this time proved a means of definitely checking the decline that yarn rates had suffered during the past few weeks. It was being claimed by most sellers that the bottom was really reached during the month of January, and that any change from now on would be of an upward nature.

During the next week spinners were asking 22 cents a pound, basis of ordinary quality 20s/2 warps, for carded weaving yarns and it was reported in various quarters in the local market that 21 cents was the minimum acceptable to dealers and spinners. It was stated by several at this time that they had made sales during the week of a really promising nature. Some of the larger houses stated that improvement in shipments against standing contracts was one of the most encouraging features they had noted in some time. Many local sellers were holding certain carded and combed counts at prices which were a half to a cent a pound above those generally quoted.

There was a slight let up in sales recorded during the next week, but prices remained just as firm as during the previous week. Many sellers reported that they were having a rather difficult time trying to induce buyers to pay more than the published prices, but added that they expected to see an increase of rates of one half to a cent a pound take place within the week.

Some spinners during the week raised their asking prices as much as 2 cents a pound for ordinary quality yarn, and it was believed that many other spinners would soon follow suit. It was generally felt that even if cotton quotations should show no further advances, or the demand for yarns should show no further increase, there would be further increases in yarn rates. With two or three weeks of normal buying, it was stated that yarn rates might show a considerable advance.

There was a very noticeable tendency on the part of buyers during the next week to place orders at reduced rates. There were a few houses who yielded and did business on a shaded scale, but leading yarn distributors and producers seemed content to pass up considerable business they could have obtained at slightly reduced rates, as they felt that in the near future they would be able to dispose of their stocks at prices that offered a more satisfactory margin of profit.

Quite a bit of confusion was prevalent among combed yarn dealers at this time. The failure of spinners to take expected steps to stabilize quotations was the cause of most of the confusion. In some cases the same situation seemed to exist among those handling mercerized yarns.

Philadelphia prices on March 16th follow:

Single Skeins.

4s to 8s	18	10s	18½
12s	19	14s	19½
16s	20	20s	21
24s	22½ @23	26s	23½ @24
30s	24½ @25		

Single Warps.

10s	19	12s	19½
14s	20½	16s	20½
20s	21 @21½	26s	24 @24½
30s	25 @25½		

Two-Ply Skeins.

8s	18½	10s	19
12s	19½	14s	20
16s	20½	20s	21 @21½
24s	23 @23½	26s	24 @24½
30s	25 @25½	40s	32 @33

Two-Ply Warps.

10s	19½	12s	20
14s	20½	16s	21
20s	21½	24s	23½ @24
26s	24½ @25	30s	25½ @26
40s	33½		

Frame Spun Carded Yarn on Cones.

8s	18	10s	18 @18½
12s	19	14s	19½
16s	20	18s	20½
20s	21	22s	22
24s	23 @23½	26s	24 @24½
30s	25 @25½	40s	32 @33
30s dbl. carded	29 @29½	30s tying in	24½ @25

Carpet Yarns.

8s and 9s white warp twist	18½ @19
8s tinged tubes	17 @17½
8s part waste	16 @16½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	32 @33	20s	33 @35
24s	36 @37	30s	37 @39
40s	40 @41	50s	46 @47
60s	51 @53	70s	62 @63
80s	74 @75		

Single Combed Peeler Yarn on Cones.

18s	30	24s	33 @33½
30s	36	36s	38
38s	39 @40	40s	41 @42
50s	45 @46	60s	50 @52
70s	62 @63		

Mule Spun.

Carded Yarn on Cones		Combed Peeler Yarn on Cones	
10s	24	10s	32
12s	24½	12s	33
14s	25	14s	34
16s	25½	16s	35
18s	26	18s	36
20s	26½	20s	38
24s	29	22s	39
26s	30	26s	40